

# FIRST: ALGEBRA

**Choose the correct answer:**

1. The simplest dispersion measure is .....  
 (a) the arithmetic mean. (b) the median.  
 (c) the range. (d) the mode.

---

2. Which of the following tables represents the direct variation between  $X$  and  $y$  ?  
 (a) 

$x$	$y$
2	9
4	18

 (b) 

$x$	$y$
3	20
5	12

 (c) 

$x$	$y$
3	6
-2	-9

 (d) 

$x$	$y$
10	9
5	18

---

3. If  $X = \{3\}$  ,  $n(Y) = 5$  , then  $n(X \times Y) = \dots\dots\dots$   
 (a) 1 (b) 5 (c) 8 (d) 15

---

4. The relation which represents an inverse variation between the two variables  $y$  and  $x$  is .....  
 (a)  $xy = 5$  (b)  $y = x + 3$  (c)  $\frac{x}{5} = \frac{y}{2}$  (d)  $y = 2x$

---

5. The arithmetic mean of the set of values : 8 , 9 , 7 , 6 and 5 equals .....  
 (a) 25 (b) 7 (c) 35 (d) 5

---

6. The relation representing the direct variation between the two variables  $x$  and  $y$  is .....  
 (a)  $xy = 5$  (b)  $y = x + 3$  (c)  $\frac{x}{3} = \frac{4}{y}$  (d)  $\frac{x}{5} = \frac{y}{2}$

---

7. If  $\sum (x - \bar{x})^2 = 36$  to the set of 9 values , then  $\sigma = \dots\dots\dots$   
 (a) 2 (b) 4 (c) 18 (d) 27

---

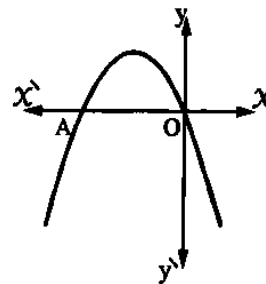
8. If  $xy = 7$  , then  $y \propto \dots\dots\dots$   
 (a)  $\frac{1}{x}$  (b)  $x - 7$  (c)  $x$  (d)  $x + 7$

**Preparatory three - First term revision - 2021**

9.	The solution set of the equation : $x^2 + 4 = 0$ in $\mathbb{R}$ is .....
	(a) $\{4\}$ (b) $\{-2, 2\}$ (c) $\{-2\}$ (d) $\emptyset$
10.	If $X \times Y = \{(1, 2), (3, 4)\}$ , then $X \cap Y =$ .....
	(a) $\{1, 2\}$ (b) $\{(3, 4)\}$ (c) $\emptyset$ (d) $\{1, 4\}$
11.	If $y = m x$ where $m$ is a constant $\neq$ zero , which of the following statements is false ?
	(a) $y \propto x$ (b) $x \propto y$ (c) $x = \frac{1}{m} y$ (d) $x \propto \frac{1}{y}$
12.	$f : f(x) = (2a - 2)x^3 + 3x^2 + x + 2$ is a polynomial function from the second degree when $a =$ .....
	(a) zero                      (b) 2                      (c) 3                      (d) 1
13.	If the point $(a - 5, 5 - a)$ lies in the fourth quadrant , then .....
	(a) $a \geq 5$ (b) $a \leq 5$ (c) $a > 5$ (d) $a < 5$
14.	If $\frac{a}{3} = \frac{b}{5}$ , then $5a - 3b + 4 =$ .....
	(a) 3                      (b) 4                      (c) 5                      (d) 6
15.	If $\sum (x - \bar{x})^2 = 48$ of a set of values and the number of these values is 12 , then $\sigma =$ .....
	(a) 2                      (b) - 2                      (c) - 4                      (d) 4
16.	The following functions are polynomial functions except the function $f$ where $f(x) =$ .....
	(a) $x + 3$ (b) $\sqrt{2}x + 1$ (c) $x\left(x + \frac{1}{x}\right)$ (d) $x^2(x + 4)$
17.	The second proportional to the numbers 2 , ... , 8 is .....
	(a) 4                      (b) 6                      (c) $\pm 4$ (d) $\pm 6$
18.	The range of the set of the values : 7 , 3 , 6 , 9 , 5 is .....
	(a) 3                      (b) 4                      (c) 6                      (d) 12
19.	If $y \propto x$ and $y = 2$ when $x = 8$ , then $y = 3$ when $x =$ .....
	(a) 16                      (b) 12                      (c) 24                      (d) 6
20.	If $5x = 9y$ , then $\frac{3x}{2y} =$ .....
	(a) 27 : 10                      (b) 9 : 5                      (c) 5 : 9                      (d) 81 : 25

**In the opposite figure :**

The curve of a quadratic function , A ( - 4 , 0 )  
 , then the equation of the axis  
 of symmetry is  $X = \dots\dots\dots$



21.

- (a) 1 (b) - 1  
 (c) - 2 (d) 0

22.

If  $f(X) = 3$  , then  $f(2) - f(7) = \dots\dots\dots$

- (a) 5 (b) - 5 (c) 0 (d) - 4

23.

The third proportional of the quantities 2 , 3 and 6 is  $\dots\dots\dots$

- (a) 1 (b) 4 (c) 9 (d) 12

24.

If the point  $(b - 4 , 2 - b)$  lies in the third quadrant, then  $b = \dots\dots\dots$

- (a) 2 (b) 3 (c) 4 (d) 6

25.

If a set of values are equal , then the dispersion of these values is  $\dots\dots\dots$

- (a) > zero (b) < zero (c) = 1 (d) = zero

26.

If  $\sum (X - \bar{X})^2 = 36$  for a set of values whose number is 9 , then  $\sigma = \dots\dots\dots$

- (a) 2 (b) 4 (c) 18 (d) 27

27.

If  $(X - 1 , 2^y) = (1 , 8)$  , then  $(X , y) = \dots\dots\dots$

- (a) (2 , 3) (b) (3 , 2) (c) (0 , 3) (d) (0 , - 3)

28.

If a , b , 2 and 3 are proportional , then  $\frac{a}{b} = \dots\dots\dots$

- (a)  $\frac{2}{3}$  (b)  $\frac{3}{2}$  (c)  $\frac{3}{4}$  (d)  $\frac{4}{3}$

29.

If  $Xy = 7$  , then  $y \propto \dots\dots\dots$

- (a)  $\frac{1}{X}$  (b)  $X - 7$  (c)  $X + 7$  (d)  $X$

30.

If  $f(X) = 3$  , then  $f(5) + f(-5) = \dots\dots\dots$

- (a) - 1 (b) 0 (c) 1 (d) 6

31.

The range of the set of the values : 3 , 5 , 6 , 7 , 9 equals  $\dots\dots\dots$

- (a) 3 (b) 4 (c) 6 (d) 12

**Preparatory three - First term revision - 2021**

32.	<p>If 2 , 3 , 6 , <math>X</math> are proportional quantities , then <math>X = \dots\dots\dots</math></p> <p>(a) 9                                      (b) 18                                      (c) 12                                      (d) 3</p>
33.	<p>If the point <math>(a - 3 , 5)</math> lies on y-axis , then <math>a = \dots\dots\dots</math></p> <p>(a) 5                                      (b) 3                                      (c) 2                                      (d) 0</p>
34.	<p>The difference between the greatest value and the smallest value of a set of individuals is called <math>\dots\dots\dots</math></p> <p>(a) the range.                                      (b) the arithmetic mean. (c) the median.                                      (d) the standard deviation.</p>
35.	<p>The fourth proportional of the quantities 4 , 8 , 8 equals <math>\dots\dots\dots</math></p> <p>(a) 4                                      (b) 8                                      (c) 12                                      (d) 16</p>
36.	<p>If <math>y^2 + 4 X^2 = 4 X y</math> , then <math>\dots\dots\dots</math></p> <p>(a) <math>y \propto X</math>                                      (b) <math>y \propto X^2</math>                                      (c) <math>y \propto \frac{1}{X}</math>                                      (d) <math>y \propto \frac{1}{X^2}</math></p>
37.	<p>The degree of the polynomial function <math>f : f (X) = X^4 - 2 X^2 + 5</math> is <math>\dots\dots\dots</math></p> <p>(a) fourth.                                      (b) third.                                      (c) second.                                      (d) first.</p>
38.	<p>The middle proportional between 3 and <math>\frac{1}{3}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>\pm 1</math>                                      (b) 9                                      (c) <math>\frac{1}{9}</math>                                      (d) <math>\pm 9</math></p>
39.	<p>The third proportional of the two numbers - 6 , 12 is <math>\dots\dots\dots</math></p> <p>(a) - 24                                      (b) 6                                      (c) 18                                      (d) 72</p>
40.	<p>If <math>f (X) = 4 X + a</math> and <math>f (2) = 15</math> , then <math>a = \dots\dots\dots</math></p> <p>(a) 2                                      (b) 4                                      (c) 7                                      (d) 15</p>
41.	<p>All of the following are polynomial functions except <math>\dots\dots\dots</math></p> <p>(a) <math>f_1(X) = X^3 + X^2 + 3</math>                                      (b) <math>f_2(X) = X^3 + \frac{1}{X} + 7</math> (c) <math>f_3(X) = 5 - X^2</math>                                      (d) <math>f_4(X) = X^2 (X - 3)^2</math></p>
42.	<p>The range is the <math>\dots\dots\dots</math> measure of dispersions.</p> <p>(a) simplest                                      (b) greatest                                      (c) difficult                                      (d) otherwise</p>



**Preparatory three - First term revision - 2021**

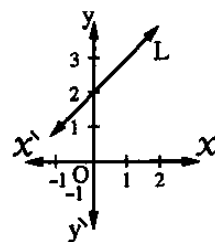
43.	The relation which represents direct variation between the two variables $X$ and $y$ is .....
	(a) $XY = 5$ (b) $y = X + 3$ (c) $\frac{X}{3} = \frac{5}{y}$ (d) $\frac{X}{5} = \frac{y}{3}$
44.	If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = k$ where $k \in \mathbb{R}$ , then $\frac{ace}{bdf} = \dots\dots\dots$
	(a) $k^3$ (b) $k^2$ (c) $k$ (d) $3$
45.	The positive square root to the average of squares deviations of values from the mean is called the .....
	(a) median.                      (b) mode.                      (c) range.                      (d) standard deviation.
46.	If $7, X, \frac{1}{y}$ are in continued proportion, then $X^2 y = \dots\dots\dots$
	(a) $7$ (b) $\frac{1}{7}$ (c) $14$ (d) $49$
47.	The commonest measure of dispersions and the most accurate is .....
	(a) the median.                      (b) the arithmetic mean. (c) the mode.                      (d) the standard deviation.
48.	The point $(-2, 5)$ lies in the ..... quadrant.
	(a) first                      (b) second                      (c) third                      (d) fourth
49.	If the point $(X - 4, 2 - X)$ where $X \in \mathbb{Z}$ is located in the fourth quadrant, then $X = \dots\dots\dots$
	(a) $2$ (b) $3$ (c) $4$ (d) $6$
50.	The linear function given by the rule $y = 2X - 1$ is represented graphically by a straight line intersecting the $y$ -axis at the point .....
	(a) $(\frac{1}{2}, 0)$ (b) $(0, -1)$ (c) $(-1, 0)$ (d) $(0, \frac{1}{2})$
51.	If a set of values are equal, then the dispersion of these values is .....
	(a) $> \text{zero}$ ,                      (b) $< \text{zero}$ (c) $= 1$ (d) $= \text{zero}$
52.	If $x^2y^2 - 6xy + 9 = 0$ , then .....
	(a) $y \propto X$ (b) $y \propto X^2$ (c) $y \propto \frac{1}{X}$ (d) $y \propto \frac{1}{X^2}$
53.	The relation which represents an inverse variation between the two variables $y$ and $X$ is .....
	(a) $XY = 5$ (b) $y = X + 3$ (c) $\frac{X}{5} = \frac{y}{2}$ (d) $y = 2X$

# SECOND: GEOMETRY

**Choose the correct answer:**

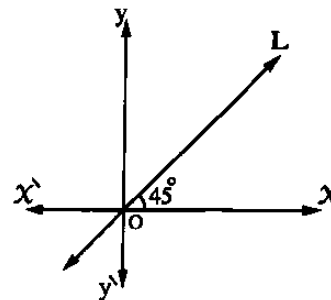
1.	If $\overrightarrow{AB} \perp \overrightarrow{CD}$ and the slope of $\overrightarrow{AB} = \frac{1}{2}$ , then the slope of $\overrightarrow{CD} = \dots\dots\dots$ (a) 2                      (b) $\frac{1}{2}$ (c) $-\frac{1}{2}$ (d) - 2
2.	$\tan 60^\circ \tan 30^\circ = \dots\dots\dots$ (a) $\sin 30^\circ$ (b) $\tan 30^\circ$ (c) $\tan 45^\circ$ (d) $\cos 60^\circ$
3.	The equation of the straight line which passes through the point (2 , 3) and is parallel to X-axis is ..... (a) $X = 2$ (b) $X = 3$ (c) $y = 2$ (d) $y = 3$
4.	If $\sin X = \frac{1}{2}$ where $X$ is an acute angle , then $\sin 2 X = \dots\dots\dots$ (a) $\frac{1}{4}$ (b) 1                      (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{\sqrt{3}}{2}$
5.	The distance between the point (4 , 3) and y-axis equals ..... length unit. (a) - 3                      (b) - 4                      (c) 3                      (d) 4
6.	If A (5 , 7) , B (1 , - 1) , then the midpoint of $\overline{AB}$ is ..... (a) (2 , 3)                      (b) (3 , 3)                      (c) (3 , 2)                      (d) (3 , 4)
7.	If A , B are two acute angles and $m(\angle A) + m(\angle B) = 90^\circ$ , $m(\angle A) \neq m(\angle B)$ , then ..... (a) $\sin A = \cos B$ (b) $\sin A = \sin B$ (c) $\tan A = \tan B$ (d) $\cos A = \cos B$
8.	A circle of centre at the origin point and its radius length is 2 length unit , then the point ..... belongs to it. (a) (1 , - 2)                      (b) $(-2 , \sqrt{5})$ (c) (0 , 1)                      (d) $(\sqrt{3} , 1)$
9.	If $\cos \frac{X}{2} = \frac{1}{2}$ where $\frac{X}{2}$ is the measure of a positive acute angle , then $X = \dots\dots\dots^\circ$ (a) 30                      (b) 90                      (c) 60                      (d) 120

10.	<p>If <math>\overrightarrow{CD}</math> is parallel to y-axis where C (k , 4) , D (- 5 , 7) , then k = .....</p> <p>(a) 5                      (b) 7                      (c) - 5                      (d) 4</p>
11.	<p>The equation of the straight line passing through the origin point and its slope = 1 is .....</p> <p>(a) <math>y = x</math>                      (b) <math>y = -x</math>                      (c) <math>y = 2x</math>                      (d) <math>y = 0</math></p>
12.	<p>If <math>\cos (x + 25^\circ) = \frac{1}{2}</math> , <math>x</math> is the measure of an acute angle , then <math>x = \dots\dots\dots^\circ</math></p> <p>(a) 20                      (b) 35                      (c) zero                      (d) 5</p>
13.	<p>The straight line whose equation is <math>3y = 2x - 6</math> , its slope = .....</p> <p>(a) 2                      (b) <math>\frac{2}{3}</math>                      (c) 6                      (d) <math>\frac{3}{2}</math></p>
14.	<p>If ABC is a right-angled triangle at B and <math>\sin A = \frac{2}{7}</math> , then <math>\cos C = \dots\dots\dots</math></p> <p>(a) <math>\frac{2}{7}</math>                      (b) <math>\frac{3}{7}</math>                      (c) <math>\frac{4}{7}</math>                      (d) <math>\frac{5}{7}</math></p>
15.	<p>The perpendicular distance between the two straight lines <math>y - 4 = 0</math> and <math>y + 5 = 0</math> equals ..... length units.</p> <p>(a) 1                      (b) 5                      (c) 9                      (d) 4</p>
16.	<p>If ABC is a right-angled triangle at B , then <math>\frac{\sin A}{\cos C} = \dots\dots\dots</math></p> <p>(a) <math>\frac{3}{5}</math>                      (b) <math>\frac{4}{3}</math>                      (c) <math>\frac{3}{4}</math>                      (d) 1</p>
17.	<p>ABC is a triangle , <math>m(\angle A) = 85^\circ</math> , <math>\sin B = \cos B</math> , then <math>m(\angle C) = \dots\dots\dots</math></p> <p>(a) <math>30^\circ</math>                      (b) <math>45^\circ</math>                      (c) <math>50^\circ</math>                      (d) <math>60^\circ</math></p>
18.	<p>The area of the triangle bounded by the straight lines <math>x = 0</math> , <math>y = 0</math> , <math>3x + 2y = 12</math> equals ..... square units.</p> <p>(a) 6                      (b) 12                      (c) 4                      (d) 5</p>
19.	<p><b>In the opposite figure :</b> Which of the following represents the equation of the straight line L ?</p> <p>(a) <math>y = x</math> (b) <math>y = 2</math> (c) <math>y + x = 2</math> (d) <math>y - x = 2</math></p>



In the figure opposite :

The equation of the straight line L is .....



20. (a)  $x = 1$   
 (b)  $y = -x$   
 (c)  $y = x$   
 (d)  $y = 1$

21. The perpendicular distance between the straight lines  
 $x - 2 = 0$  ,  $x + 3 = 0$  equals ..... length units.

(a) 1 (b) 5 (c) 2 (d) 3

22. The distance between the two points  $(15, 0)$  ,  $(6, 0)$  equals ..... unit length.

(a) -9 (b) 9 (c) 3 (d) -3

23. If  $\overleftrightarrow{CD}$  is parallel to the y-axis where  $C(m, 4)$  ,  $D(-5, 7)$  , then  $m =$  .....

(a) 5 (b) -5 (c) -7 (d) 7

24. If  $\overline{AB}$  is a diameter of a circle , where  $A(3, -5)$  ,  $B(5, 1)$  , then the centre of the circle is .....

(a)  $(8, -2)$  (b)  $(4, 2)$  (c)  $(2, 2)$  (d)  $(4, -2)$

25. If  $\frac{-2}{3}$  ,  $\frac{k}{2}$  are the slopes of two parallel straight lines , then  $k =$  .....

(a)  $\frac{-4}{3}$  (b)  $\frac{-3}{4}$  (c) 3 (d)  $\frac{1}{3}$

26. If  $\cos 2x = \frac{1}{2}$  , then  $m(\angle x) =$  .....

(a)  $15^\circ$  (b)  $30^\circ$  (c)  $45^\circ$  (d)  $60^\circ$

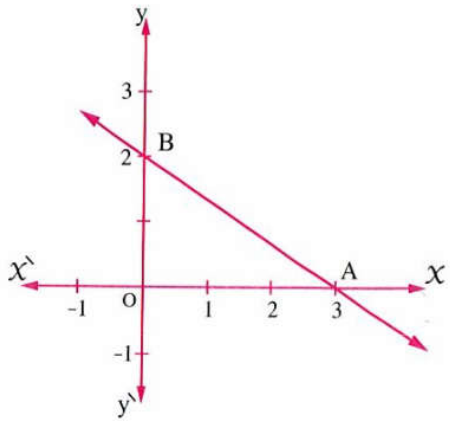
27. If the two straight lines  $3x - 4y = 3$  and  $4x + ky = 8$  are perpendicular , then  $k =$  .....

(a) 4 (b) 3 (c) -4 (d) -3

28. The slope of the straight line which makes with the positive direction of x-axis a positive angle of measure  $45^\circ$  equals .....

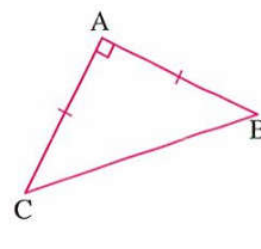
(a) 1 (b) -1 (c) zero (d) 1.4

**Preparatory three - First term revision - 2021**

29.	<p>If <math>\cos (X + 15^\circ) = \frac{1}{2}</math> , then <math>\tan X = \dots\dots\dots</math> where <math>X</math> is the measure of an acute angle.</p> <p>(a) 1                      (b) <math>\sqrt{3}</math>                      (c) <math>\frac{\sqrt{3}}{3}</math>                      (d) <math>\frac{1}{2}</math></p>
30.	<p>The distance between the two points <math>(-3, 0)</math> and <math>(0, -4)</math> equals <math>\dots\dots\dots</math> length units.</p> <p>(a) 4                      (b) 5                      (c) 3                      (d) 2</p>
31.	<p>If <math>C(-3, y)</math> is the midpoint of <math>\overline{AB}</math> where <math>A(X, -6)</math> and <math>B(9, -12)</math> , then <math>y - X = \dots\dots\dots</math></p> <p>(a) 7                      (b) 9                      (c) 6                      (d) -18</p>
32.	<p>If <math>m(\angle A) = 85^\circ</math> and <math>\sin B = \cos B</math> in <math>\triangle ABC</math> , then <math>m(\angle C) = \dots\dots\dots^\circ</math></p> <p>(a) 30                      (b) 45                      (c) 50                      (d) 60</p>
33.	<p>The straight line whose equation is <math>2y = 3x - 6</math> intercepted a part equal <math>\dots\dots\dots</math> units from y-axis.</p> <p>(a) 6                      (b) 2                      (c) 3                      (d) <math>\frac{3}{2}</math></p>
34.	<p>If <math>\sin X = \cos X</math> , then <math>X = \dots\dots\dots^\circ</math> (<math>X</math> is the measure of an acute angle)</p> <p>(a) 30                      (b) 45                      (c) 60                      (d) 90</p>
35.	<p><b>In the opposite figure :</b> The slope of <math>\overrightarrow{AB}</math> equals <math>\dots\dots\dots</math></p> <p>(a) <math>\frac{2}{3}</math> (b) <math>-\frac{2}{3}</math> (c) <math>\frac{3}{2}</math> (d) <math>-\frac{3}{2}</math></p> 
36.	<p>The perpendicular distance between the two straight lines <math>x - 3 = 0</math> , <math>x + 4 = 0</math> equals <math>\dots\dots\dots</math> length units.</p> <p>(a) 2                      (b) 7                      (c) 12                      (d) 6</p>
37.	<p>If <math>\tan (X + 20^\circ) = \sqrt{3}</math> where <math>(X + 20^\circ)</math> is the measure of an acute angle , then <math>X = \dots\dots\dots</math></p> <p>(a) 30                      (b) 60                      (c) 90                      (d) 40</p>

**Preparatory three - First term revision - 2021**

38.	<p>If <math>x + y = 5</math> , <math>kx + 2y = 0</math> are two parallel straight lines , then <math>k = \dots\dots\dots</math></p> <p>(a) <math>-2</math>                      (b) <math>-1</math>                      (c) <math>1</math>                      (d) <math>2</math></p>
39.	<p>The points <math>(0, 0)</math> , <math>(0, 6)</math> and <math>(8, 0)</math> .....</p> <p>(a) form an acute-angled triangle.                      (b) form a right-angled triangle. (c) form an obtuse-angled triangle.                      (d) are collinear.</p>
40.	<p>The equation of the straight line which passes through the point <math>(-5, 3)</math> and is parallel to y-axis is .....</p> <p>(a) <math>x = -5</math>                      (b) <math>y = -5</math>                      (c) <math>y = 3</math>                      (d) <math>x = 3</math></p>
41.	<p>The perpendicular distance between the two straight lines <math>x - 2 = 0</math> , <math>x + 3 = 0</math> equals ..... length units.</p> <p>(a) <math>1</math>                      (b) <math>2</math>                      (c) <math>4</math>                      (d) <math>5</math></p>
42.	<p><math>4 \sin 60^\circ \tan 60^\circ = \dots\dots\dots</math></p> <p>(a) <math>3</math>                      (b) <math>6</math>                      (c) <math>12</math>                      (d) <math>2\sqrt{3}</math></p>
43.	<p><math>\tan 60^\circ \tan 30^\circ = \dots\dots\dots</math></p> <p>(a) <math>\sin 30^\circ</math>                      (b) <math>\tan 30^\circ</math>                      (c) <math>\tan 45^\circ</math>                      (d) <math>\cos 60^\circ</math></p>
44.	<p>If <math>\sin x = \frac{1}{2}</math> where <math>x</math> is an acute angle , then <math>\sin 2x = \dots\dots\dots</math></p> <p>(a) <math>\frac{1}{4}</math>                      (b) <math>1</math>                      (c) <math>\frac{1}{\sqrt{3}}</math>                      (d) <math>\frac{\sqrt{3}}{2}</math></p>
45.	<p>The distance between the point <math>(4, 3)</math> and y-axis equals ..... length unit.</p> <p>(a) <math>-3</math>                      (b) <math>-4</math>                      (c) <math>3</math>                      (d) <math>4</math></p>
46.	<p>The equation of the straight line which passes through the point <math>(1, -3)</math> and is parallel to x-axis is .....</p> <p>(a) <math>x = 3</math>                      (b) <math>y = 1</math>                      (c) <math>y = -3</math>                      (d) <math>x = -3</math></p>
47.	<p><b>In the opposite figure :</b> ABC is an isosceles triangle and a right-angled triangle at A , then <math>\tan C = \dots\dots\dots</math></p> <p>(a) <math>\frac{\sqrt{3}}{2}</math>                      (b) <math>\frac{1}{\sqrt{3}}</math>                      (c) <math>1</math>                      (d) <math>\frac{1}{2}</math></p>





## First Algebra:

Choose the correct answer:

1) The relation which represents the inverse relation between  $x$  and  $y$  is .....

- (a)  $y=5x$       b)  $y=\frac{1}{5}x$       c)  $y=\frac{5}{x}$       d)  $y=5x$

2)  $[1, 5] - \{0, 1\} = \dots\dots\dots$

- a)  $]1, 5[$       b)  $]1, 5]$       c)  $[1, 5[$       d)  $\{5\}$

3) If the arithmetic mean of the set of values  $a, 5, 8, 7, 6$  equals  $6$ , then  $a = \dots\dots\dots$

- a)  $4$       b)  $6$       c)  $8$       d)  $30$

4) If  $\frac{3}{4} + \frac{3}{x} = \frac{3}{2}$  then  $x = \dots\dots\dots$

- a)  $2$       b)  $4$       c)  $3$       d)  $9$

5) The linear function  $f: f(x) = 2x - 1$  is represented by a straight line cutting  $y$ -axis at the point .....

- a)  $(0, 1)$       b)  $(0, -1)$       c)  $(1, 0)$       d)  $(-1, 0)$

6) The range of the set of values  $7, 3, 6, 9, 5$  equals .....

- a)  $3$       b)  $4$       c)  $6$       d)  $12$

7) If  $x-y=5$ ,  $x+y=1$ , then  $x^2 - y^2 = \dots\dots\dots$

- a)  $5$       b)  $3$       c)  $25$       d)  $\frac{1}{25}$

8) If  $n(X^2) = 9$ , then  $n(X) = \dots\dots\dots$

- a)  $1$       b)  $3$       c)  $6$       d)  $9$

9) If  $(9, 4) \in \{9, 7\} \times \{x, 5\}$ , then  $x = \dots\dots\dots$

- a)  $9$       b)  $4$       c)  $7$       d)  $5$



10)..... is one of the measures of the dispersions

- a) The arithmetic mean      b) The median  
b) C) The mode      d) The standard deviation

11) The point  $(-3, 4)$  in the ..... quadrant

- a) first      b) second      c) third      d) fourth

12) If  $\sum(x - \bar{x})^2 = 48$  of a set of values and the number of these values = 12, then  $\sigma =$  .....

- a) -2      b) 2      c) 4      d) 6

13)  $\frac{1}{3}$  of the number  $3^4 =$  .....

- a) 3      b)  $3^2$       c)  $3^3$       d)  $2^3$

14) If  $x, y, z$  are in continued proportion, then  $x =$  .....

- a)  $\pm\sqrt{xy}$       b)  $yz$       c)  $\frac{y^2}{z}$       d)  $\frac{y}{z}$

15) If all the values are equal, then .....

- a)  $x - \bar{x} > 0$       b)  $x - \bar{x} < 0$       c)  $x = 0$       d)  $\sigma = 0$

16) If  $\sum(x - \bar{x})^2 = 48$  of a set of values and the number of these values = 12, then  $\sigma =$  .....

- a) -2      b) 2      c) 4      d) 6

17)  $\sqrt[3]{64} = \sqrt{\dots}$

- a) 2      b) 16      c) 8      d) 4

18)  $]4, 6[ \cap \{4, 6\} =$  .....

- a)  $]4, 6[$       b)  $\{4\}$       c)  $[4, 6]$       d)  $\emptyset$



19) The ratio between the area of a square of side length  $l$  and the area of a square of side length  $3l$  equals .....

- a) 1:3      b) 3:1      c) 1:9      d) 9:1

20) If  $x$  and  $x + 17$  are two prime numbers, then  $x = \dots\dots\dots$

- a) 1      b) 2      c) 3      d) 5

21)  $\frac{1}{3}$  of the number  $3^4$  is .....

- a) 3      b)  $3^2$       c)  $3^3$       d)  $2^3$

22) The positive square root of mean of the squares of deviations of the values from their arithmetic mean is called .....

- a) the range      b) the medians  
c) the standard deviation      d) the mode

23) The simplest dispersion measure is .....

- a) the mean      b) the median      c) the range      d) the mode

24) The relation representing the direct variation between the two variables  $y$  and  $x$  is .....

- a)  $xy = 5$       b)  $y = x + 5$       c)  $\frac{x}{3} = \frac{y}{5}$       d)  $\frac{x}{3} = \frac{5}{y}$

25) The S.S. of the equation :  $x(x - 1) = 0$  in  $R$  is .....

- a)  $\{0\}$       b)  $\{0, 1\}$       c)  $\{1\}$       d)  $\emptyset$

26) If a regular die is thrown once, then the probability of getting an odd number is .....

- a) 0      b) 1      c) 0.5      d) 0.2



27) If the point  $(x - 4, 2 - x)$  where  $x \in \mathbb{Z}$  is located in the third quadrant, then  $x$  = .....

- a) 2      b) 3      c) 4      d) 6

28) The middle proportion between  $a$  and  $c$  equals .....

- a)  $\sqrt{a + c}$       b)  $\frac{a+c}{2}$       c)  $\pm\sqrt{ac}$       d)  $ac$

29) The range of the set of values 7,  $x$ , 8, 9 and 5 is 6, then  $x$  = .....

- a) 3      b) 4      c) 6      d) 12

30) The function  $f: f(x) = (x - 2)^2 - x^2$  is of the ..... degree

- a) first      b) second      c) third      d) fourth

### Second: Trigonometry & Geometry

31) The equation of the straight line which passes through the origin point is .....

- a)  $x = 1$       b)  $y = 1$       c)  $y = x$       d)  $y = -x$

32) The area of the square whose perimeter is 16 length unit = ..... square units

- a) 4      b) 8      c) 12      d) 16

33) The slope of the straight line which is parallel to  $x$  - axis is .....

- a) -1      b) zero      c) 1      d) undefined

34)  $2\sin 30^\circ = \dots\dots\dots$

- a)  $\frac{1}{2}$       b)  $\frac{\sqrt{3}}{2}$       c) 1      d) 2

35) The sum of measures of the interior angles of a quadrilateral equals .....

- a) 360      b) 180      c) 90      d) 540



36) If  $A(1, -6)$ ,  $B(9, 2)$ , then the midpoint of  $\overline{AB}$  is .....

- a)  $(-2, 5)$       b)  $(2, -5)$       c)  $(5, -2)$       d)  $(-5, 2)$

37) If  $a = b$ ,  $a, b$  are the measures of two complementary angles, then  $a = \dots\dots\dots$

- a) 30      b) 45      c) 60      d) 90

38) The distance between the two points  $(4, 0)$  and  $(0, -3) = \dots\dots\dots$  length units

- a) 5      b) 4      c) 3      d) 12

39)  $ABC$  is a right-angled triangle at  $B$ ,  $D$  is the midpoint of  $\overline{AC}$  and  $BD = 5\text{cm}$ , then  $AC = \dots\dots\dots\text{cm}$

- a) 5      b) 10      c) 15      d) 20

40) The number of axis of symmetry of an isosceles triangle equals .....

- a) 1      b) zero      c) 2      d) 3

41) If  $\cos(x + 30) = \frac{1}{2}$  where  $x$  is the measure of an acute angle, then  $x = \dots\dots\dots$

- a) 60      b) 30      c) 45      d) 20

42) If the length of two sides of an isosceles triangle are 3 cm., 7 cm., then the length of the third side is .....

- a) 4      b) 7      c) 10      d) 3

43) The distance between the two straight lines  $x - 2 = 0$ ,  $x + 3 = 0$  equals ..... Length units

- a) 1      b) 2      c) 3      d) 5

44) The equation of the straight line passing through the point  $(-2, -3)$  and parallel to  $x$ -axis is .....

- a)  $y = -2$       b)  $y = -3$       c)  $x = -2$       d)  $x = -3$



45) The length of the side which opposite to angle 30 in the right-angled triangle equals ..... The length of the hypotenuse

- a) twice                      b) half                      c) triple                      d) third

46) If the diagonal length of a square is 10 cm. , then its area = ..... $cm^2$

- a) 100                      b) 50                      c) 75                      d) 25

47) The image of the point (3 , -2) by reflection in the x-axis is .....

- a) (-2 , 3)                      b) (3 , 2)                      c) (2 , -3)                      d) (-3 , -2)

48) The slope of the straight line  $x-5=0$  is .....

- a) 5                      b) 0                      c) -5                      d) undefined

49) The number of diagonals of hexagon equals .....

- a) 4                      b) 5                      c) 6                      d) 7

50) The measure of two angles of a triangle are 70 , 40 , then the number of axis of symmetry of the triangle = .....

- a) 1                      b) 2                      c) 3                      d) zero

51) If O the origin point of  $\overline{AB}$  as  $A=(-2 , 5)$  , then  $B=$  .....

- a) (2 , 5)                      b) (2 , -5)                      c) (-2 , 5)                      d) (-2 , -5)

52) The perimeter of the square whose surface area is 100 square units = ..... units

- a) 10                      b) 20                      c) 40                      d) 50

53) If  $\frac{-2}{3}$  ,  $\frac{6}{k}$  are the slopes of two perpendicular straight lines, then  $k =$  .....

- a) 4                      b) -9                      c) -4                      d) 9

54) The measure of the interior angle of a regular hexagon equals .....

- a) 108                      b) 120                      c) 90                      d) 180



55) The equation of the straight line which passes through the point (2 , -3) and is parallel to  $x - axis$  is .....

- a)  $x = 2$       b)  $y = -3$       c)  $x = -2$       d)  $y = 3$

56) XYZ is an isosceles right-angled triangle at Z , then  $\tan X =$  .....

- a)  $\frac{1}{2}$       b)  $\frac{1}{3}$       c) 1      d)  $\frac{1}{\sqrt{3}}$

57) The measure of the exterior angle of an equilateral triangle equals .....

- a) 60      b) 90      c) 120      d) 180

58) The product of multiplying the slopes of two perpendicular straight lines equals .....

- a) zero      b) 1      c) -1      d) half

59) The quadrilateral whose diagonals are equal in length and perpendicular is .....

- a) parallelogram      b) square      c) rectangle      d) rhombus

60) If the length of two sides of a triangle are 2 cm. , and 5 cm. then the length of the third side  $\in$  .....

- a) [2 , 5]      b) [3 , 7]      c) ]3 , 7[      d) ]3 , 5[

61) The area of the triangle identified by the straight lines :

$3x - 4y = 12$  ,  $x = 0$  ,  $y = 0$  equals ..... square units

- a) 6      b) 7      c) 12      d) 5

62) If the straight line passing through the two points  $(\sqrt{3}, 1)$  ,  $(2\sqrt{3}, y)$  its slope equals  $\tan 60^\circ$  , then  $y =$  .....

- a) 2      b) 3      c) 4      d) 5

63) The complement angle of the angle whose measure is 65 is of measure .....

- a) 35      b) 25      c) 115      d) 45



# Prep. [3]

## First Term - Algebra

### Final Revision

### Part 2 - Problems



**Mr. Mahmoud Esmail**  
**01006487539 - 01110882717**

الاسم



**[ A ] : Choose The Correct Answer : -**

1	If $X = \{5\}$ and $Y = \{3\}$ , then $n(X \times Y) = \dots\dots\dots$ (a) 15 (b) 5 (c) 3 (d) 1	D
2	If $X = \{7\}$ , $Y = \{5\}$ , then $n(X \times Y) = \dots\dots\dots$ (a) 1 (b) 2 (c) zero (d) 35	A
3	If $n(X) = 2$ , $Y = \{1, 2\}$ , then $n(X \times Y) = \dots\dots\dots$ (a) 4 (b) 3 (c) 5 (d) 6	A
4	If $n(X) = 3$ , $n(X \times Y) = 12$ , then $n(Y) = \dots\dots\dots$ (a) 15 (b) 36 (c) 4 (d) 9	C
5	If $n(X^2) = 4$ , $n(X \times Y) = 12$ , then $n(Y) = \dots\dots\dots$ (a) 3 (b) 6 (c) 4 (d) 12	B
6	If $X = \{2, 3, 4\}$ , then $n(X^2) = \dots\dots\dots$ (a) 3 (b) 6 (c) 9 (d) 12	C
7	If $X = \{2\}$ , then $X^2 = \{ \dots\dots\dots \}$ (a) (2, 2) (b) (2, 0) (c) (0, 2) (d) (2, -2)	A
8	If $(2, 9) \in \{2, 8\} \times \{x, 4\}$ , then $x = \dots\dots\dots$ (a) 8 (b) 6 (c) 9 (d) 2	C
9	If $\{2\} \times \{x, y\} = \{(2, 4), (2, 3)\}$ , then $x - y = \dots\dots\dots$ (a) 1 (b) -1 (c) $\pm 1$ (d) zero	C
10	The set of images elements of the domain of the function is called ..... (a) the rule. (b) the domain. (c) the range. (d) the codomain.	C
11	The point $(4, -5)$ lies in the ..... quadrant. (a) first (b) second (c) third (d) fourth	D
12	If the point $(x - 4, 2 - x)$ where $x \in \mathbb{Z}$ is located in the third quadrant , then $x$ equals ..... (a) 2 (b) 3 (c) 4 (d) 6	B



13	If the point $(X - 5, 7 - X)$ lies in the second quadrant , then $X = \dots\dots\dots$ (a) 5 (b) 3 (c) 7 (d) 9	B
14	If the point $(X, 2)$ lies on y-axis , then $X + 3 = \dots\dots\dots$ (a) 3 (b) zero (c) 2 (d) 5	A
15	if $(X - 2, 13) = (7, y + 5)$ , then $\sqrt{X + 2y} = \dots\dots\dots$ (a) 2 (b) 5 (c) 7 (d) 13	B
16	If $(X - 1, 11) = (8, y + 3)$ , then $\sqrt{X + 2y} = \dots\dots\dots$ (a) 7 (b) 5 (c) 4 (d) 3	B
17	If the point $(a, 3)$ lies on the straight line which represents the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ , where $f(X) = 4X - 5$ , then a equals $\dots\dots\dots$ (a) 2 (b) 4 (c) 5 (d) - 1	A
18	If the point $(a, 2)$ lies on the straight line which represents the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ where $f(X) = 3X - 1$ , then a = $\dots\dots\dots$ (a) 2 (b) 3 (c) 1 (d) - 1	C
19	The function $f$ where $f(X) = X^4 - 2X^3 + 7$ is polynomial of degree $\dots\dots\dots$ (a) first. (b) second. (c) third. (d) fourth.	D
20	The function $f$ where $f(X) = X(X - 4) + 1$ is a polynomial of the $\dots\dots\dots$ degree. (a) first (b) second (c) third (d) fourth	B
21	If $f : \mathbb{R} \longrightarrow \mathbb{R}$ , then the function $f$ where $f(X) = X^2 - (X^2 - 3X)$ is of the $\dots\dots\dots$ degree. (a) first (b) second (c) third (d) fourth	A
22	$f(X) = X(3X + 2)^2$ is function of $\dots\dots\dots$ degree. (a) third (b) second (c) first (d) otherwise	A
23	If $(2, b)$ satisfies the function $f$ where $f(X) = 3X - 6$ , then b = $\dots\dots\dots$ (a) zero (b) 7 (c) 9 (d) 2	A



24	If $f(x) = kx + 8$ , $f(2) = \text{zero}$ , then $k = \dots\dots\dots$ (a) 8 (b) 6 (c) 4 (d) -4	D
25	The function $f$ where $f(x) = 5x$ is represented graphically by a straight line passes through the point ..... (a) (5, 5) (b) (0, 0) (c) (0, 5) (d) (5, 0)	B
26	If $3a = -4b$ , then $\frac{a}{b} = \dots\dots\dots$ (a) $-\frac{4}{3}$ (b) $-\frac{3}{4}$ (c) $\frac{3}{4}$ (d) $\frac{4}{3}$	A
27	If $6a - 5b = 0$ , then $\frac{a}{b} = \dots\dots\dots$ (a) $\frac{6}{5}$ (b) $\frac{5}{6}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$	B
28	If $\frac{a}{b} = \frac{5}{3}$ , then $\frac{3a}{5b}$ equals ..... (a) $\frac{5}{3}$ (b) 1 (c) 3 (d) 15	B
29	If $3a = \frac{5}{6}b$ , then $\frac{a}{b} = \dots\dots\dots$ (a) $\frac{18}{5}$ (b) $\frac{5}{2}$ (c) $\frac{2}{5}$ (d) $\frac{5}{18}$	D
30	If $\frac{x}{2} = \frac{y}{3}$ , then $\frac{3x}{2y} = \dots\dots\dots$ (a) zero (b) 1 (c) 2 (d) 3	B
31	If $\frac{a}{3} = \frac{b}{2} = \frac{2a+b}{x}$ , then $x = \dots\dots\dots$ (a) 8 (b) 4 (c) 3 (d) 1	A
32	If $\frac{x}{8} = \frac{y}{7} = \frac{x+y}{3k}$ , then $k = \dots\dots\dots$ (a) 15 (b) 8 (c) 5 (d) 7	C
33	The equality of two ratios or more is called the ..... (a) function. (b) direct variation. (c) inverse variation. (d) proportion.	D
34	The first proportional for the numbers : 7, 10, 14 is ..... (a) 5 (b) 7 (c) 10 (d) $\frac{7}{10}$	A



35	If 4 , $x$ , 12 , 18 are proportional , then $x = \dots\dots\dots$ (a) 2 (b) 3 (c) 6 (d) 54	C
36	The third proportional of the numbers : 4 , 3 , $\dots$ , 6 is $\dots\dots\dots$ (a) 2 (b) 4 (c) 5 (d) 8	D
37	The fourth proportional of the quantities : 9 , 21 , 15 , $\dots$ is $\dots\dots\dots$ (a) 14 (b) 28 (c) 35 (d) 42	C
38	The third proportion of the two numbers 3 and 6 is $\dots\dots\dots$ (a) $\frac{1}{2}$ (b) 2 (c) 6 (d) 12	D
39	The positive middle proportion between 3 and 27 is $\dots\dots\dots$ (a) 3 (b) 4 (c) 8 (d) 9	D
40	If 2 , 6 , $x + 15$ are proportional , then $x = \dots\dots\dots$ (a) 1 (b) 2 (c) 3 (d) 4	C
41	If 3 , $x$ and $\frac{1}{y}$ are in continued proportion , then $y \propto \dots\dots\dots$ (a) $x$ (b) $\frac{1}{x}$ (c) $x^2$ (d) $\frac{1}{x^2}$	D
42	If 1 , $x$ , 4 in continued proportion , then $x = \dots\dots\dots$ (a) $\pm 1$ (b) $\pm 2$ (c) $\pm 4$ (d) $\pm 3$	B
43	) If $y$ varies inversely with $x$ and $y = 4$ when $x = 3$ , then $y = \dots\dots\dots$ when $x = 2$ (a) 4 (b) 3 (c) 6 (d) 12	C
44	If $y = 4x$ , then $\dots\dots\dots$ (a) $y \propto \frac{1}{x}$ (b) $x \propto \frac{1}{y}$ (c) $y \propto x$ (d) otherwise.	C
45	If $y = 2x$ , then $y \propto \dots\dots\dots$ (a) $\frac{1}{x}$ (b) $x^2$ (c) $\frac{1}{x^2}$ (d) $x$	D
46	If $\frac{x}{y} = 1$ , then $y \propto \dots\dots\dots$ (a) $x - 1$ (b) $x + 1$ (c) $\frac{1}{x}$ (d) $x$	D



47	If $xy = 2$ , then ..... (a) $x \propto \frac{1}{y}$ (b) $x \propto y$ (c) $x \propto 2y$ (d) $x = 2y$	A
48	If $xy^2 = a$ where $a$ is a constant $\neq$ zero , then $x$ varies inversely with ..... (a) $\frac{1}{y^2}$ (b) $\frac{1}{y}$ (c) $y$ (d) $y^2$	D
49	If $2x - 3y = 2y - 5x$ , then $x \propto$ ..... (a) $y^2$ (b) $\frac{1}{y^2}$ (c) $\frac{1}{y}$ (d) $y$	D
50	The relation represents the direct variation between the two variables $x$ and $y$ which is ..... (a) $xy = 5$ (b) $y = x + 3$ (c) $\frac{x}{3} = \frac{4}{y}$ (d) $\frac{x}{5} = \frac{y}{2}$	D
51	If $y^2 + 4x^2 = 4xy$ , then ..... (a) $y \propto x$ (b) $y \propto x^2$ (c) $y \propto \frac{1}{x}$ (d) $y \propto \frac{1}{x^2}$	A
52	If $4x^2 - 12xy + 9y^2 = 0$ , then $y \propto$ ..... (a) $x$ (b) $x^2$ (c) $\frac{1}{x}$ (d) $\frac{1}{x^2}$	A
53	If $x^2 - 4xy + 4y^2 = 0$ , then ..... (a) $x \propto y$ (b) $x \propto \frac{1}{y}$ (c) $x \propto y^2$ (d) $x \propto \frac{1}{y^2}$	A
54	One of the measurements of dispersion is the ..... (a) arithmetic mean.                      (b) median.                      (c) range.                      (d) mode.	C
55	The simplest and easiest dispersion measure is the ..... (a) range.                      (b) arithmetic.                      (c) median.                      (d) mode.	A
56	The range of the set of the values : 7 , 3 , 6 , 9 and 5 equals ..... (a) 3                      (b) 4                      (c) 6                      (d) 12	C
57	The range of the set of the values : 3 , 4 , 6 , 9 , and 12 equals ..... (a) 15                      (b) 9                      (c) 5                      (d) 3	B



58	The range of the set of the values : 5 , 14 , 21 , 4 , 16 , 12 is ..... (a) 17 (b) 15 (c) 13 (d) 11	A
59	The range of the set of the values : 5 , 13 , 4 , 19 and 16 is ..... (a) 19 (b) 16 (c) 14 (d) 15	D
60	The range of the set of values : 23 , 22 , 15 , 18 , 17 is ..... (a) 8 (b) 18 (c) 19 (d) 23	A
61	The difference between the largest and smallest value for a set of values is the ..... (a) arithmetic mean. (b) range. (c) median. (d) mode.	B
62	The difference between the maximum and minimum value is called the ..... (a) range. (b) mean. (c) median. (d) standard deviation	A
63	The difference between the greatest value and the smallest value is ..... (a) the range. (b) the mean. (c) the median. (d) the standard defiation.	A
64	The set which has the greatest dispersion in the following sets is ..... (a) 28 , 17 , 30 , 36 , 20 (b) 20 , 19 , 29 , 37 , 43 (c) 31 , 35 , 26 , 37 , 41 (d) 25 , 39 , 19 , 5 , 27	D
65	The arithmetic mean of the set of the values : 6 , 2 , 8 and 4 = ..... (a) 5 (b) 6 (c) 10 (d) 20	A
66	The mean of the values : 2 , 3 , 7 , 8 , 10 = ..... (a) 3 (b) 5 (c) 2 (d) 6	D
67	The arithmetic mean of the set of the values : 7 , 3 , 6 , 9 and 5 equals ..... (a) 3 (b) 4 (c) 6 (d) 12	C
68	The arithmetic mean of the set of the values : 7 , 6 , 5 , 13 , 4 is ..... (a) 9 (b) 15 (c) 6 (d) 7	D
69	The arithmetic mean of the values : 12 , 24 , 26 , 38 and 20 is ..... (a) 12 (b) 24 (c) 26 (d) 38	B



70	<p>The positive square root of the average of the squares of deviations of the values from their arithmetic mean is called .....</p> <p>(a) the range. (b) the arithmetic mean. (c) the median. (d) the standard deviation.</p>	D
71	<p>If all the individuals are equal in values then .....</p> <p>(a) <math>\Sigma (X - \bar{X}) &gt; \text{zero}</math> (b) <math>\Sigma (X - \bar{X}) &lt; \text{zero}</math> (c) <math>\sigma = \text{zero}</math> (d) <math>\bar{X} = \text{zero}</math></p>	C
72	<p>If <math>\Sigma (X - \bar{X})^2 = 36</math> for a set of values whose number is 9 , then <math>\sigma = \dots\dots\dots</math></p> <p>(a) 2 (b) 4 (c) 18 (d) 27</p>	A
73	<p>If <math>\Sigma (X - \bar{X})^2 = 28</math> for a set of values whose number is 7 , then <math>\sigma = \dots\dots\dots</math></p> <p>(a) 2 (b) 4 (c) 7 (d) 14</p>	A
74	<p>If the standard deviation of the set of values = 2 and number of these values = 6 , then <math>\Sigma (X - \bar{X})^2 = \dots\dots\dots</math></p> <p>(a) 12 (b) 18 (c) 24 (d) 36</p>	C

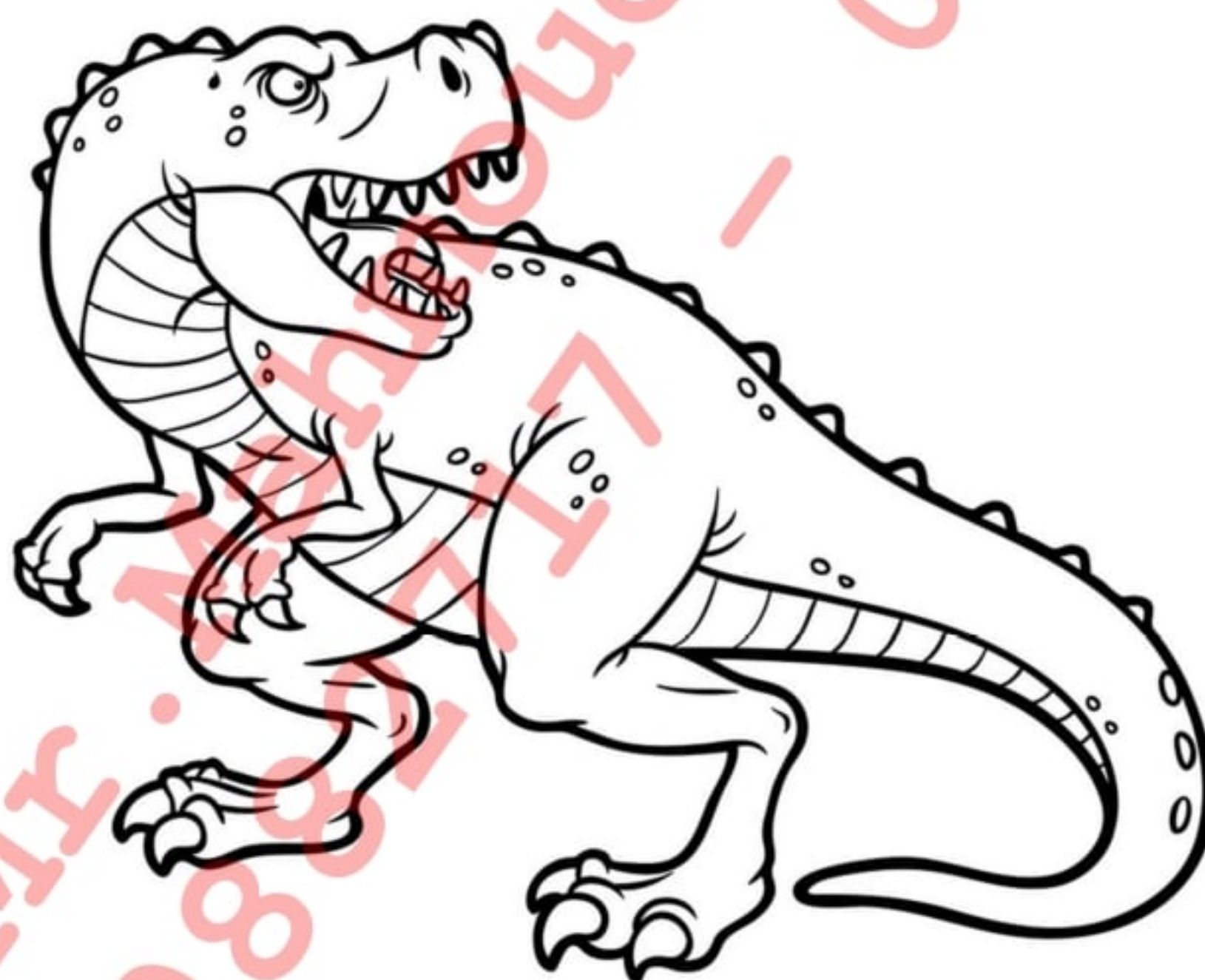


# Prep. [3]

## First Term - Geometry

### Final Revision

### Part 2 - Problems



**Mr. Mahmoud Esmail**  
**01006487539 - 01110882717**

الاسم



**[ A ] : Choose The Correct Answer : -**

1	$\tan 45^\circ = \dots\dots\dots$ (a) $\sqrt{3}$ (b) 1 (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{2}$	<b>B</b>
2	$\tan^2 45^\circ = \dots\dots\dots$ (a) $\sqrt{3}$ (b) $\frac{1}{\sqrt{3}}$ (c) 1 (d) $\frac{1}{2}$	<b>C</b>
3	$\sqrt{2} \sin 30^\circ = \dots\dots\dots$ (a) $\sin 45^\circ$ (b) $\sin 60^\circ$ (c) $\cos 30^\circ$ (d) $\cos 60^\circ$	<b>A</b>
4	$\tan 45^\circ \sin 30^\circ = \dots\dots\dots$ (a) $\frac{1}{2}$ (b) 1 (c) $\frac{2}{3}$ (d) $\frac{\sqrt{3}}{2}$	<b>A</b>
5	$2 \sin 30^\circ \cos 30^\circ = \dots\dots\dots$ (a) $\sin 60^\circ$ (b) $\cos 60^\circ$ (c) $\tan 60^\circ$ (d) $\tan 30^\circ$	<b>A</b>
6	$4 \cos 30^\circ \tan 60^\circ = \dots\dots\dots$ (a) 3 (b) $2\sqrt{3}$ (c) 6 (d) 12	<b>C</b>
7	$\sin 30^\circ + \cos 60^\circ + \tan 45^\circ = \dots\dots\dots$ (a) -2 (b) 1 (c) 1.5 (d) 2	<b>D</b>
8	$2 \tan 45^\circ - \frac{1}{\cos 60^\circ} = \dots\dots\dots$ (a) zero (b) $\frac{1}{2}$ (c) $\frac{\sqrt{3}}{2}$ (d) 1	<b>A</b>
9	If $\sin X = \frac{1}{2}$ where $X$ is a measure of an acute angle , then $X = \dots\dots\dots^\circ$ (a) 90 (b) 60 (c) 45 (d) 30	<b>D</b>
10	If $\sin X = \frac{1}{2}$ , where $X$ is an acute angle. $\therefore \sin 2X = \dots\dots\dots$ (a) 1 (b) 2 (c) $\frac{1}{2}$ (d) $\frac{\sqrt{3}}{2}$	<b>D</b>
11	If $\cos X = \frac{1}{2}$ where $X$ is an acute angle , then $X = \dots\dots\dots$ (a) $30^\circ$ (b) $60^\circ$ (c) $90^\circ$ (d) $45^\circ$	<b>B</b>



12	If $\sin X = 1$ where $X$ is an angle , then $m(\angle X) = \dots\dots\dots^\circ$ (a) 30 (b) 60 (c) 45 (d) 90	D
13	If $\cos 2X = \frac{1}{2}$ , $X$ is the measure of an acute angle , then $m(\angle X) = \dots\dots\dots^\circ$ (a) 15 (b) 30 (c) 45 (d) 60	B
14	If $\tan \frac{3X}{2} = 1$ where $X$ is an acute angle , then $m(\angle X) = \dots\dots\dots$ (a) $10^\circ$ (b) $30^\circ$ (c) $45^\circ$ (d) $60^\circ$	B
15	If $\tan 3X = 1$ , where $X$ is an acute angle , then $3X = \dots\dots\dots$ (a) $15^\circ$ (b) $20^\circ$ (c) $45^\circ$ (d) $60^\circ$	C
16	If $\tan 3X = \sqrt{3}$ where $3X$ is an acute angle , then $m(\angle X) = \dots\dots\dots^\circ$ (a) 10 (b) 20 (c) 30 (d) 60	B
17	If $\tan (X + 15^\circ) = \sqrt{3}$ where $X$ is an acute angle , then $m(\angle X) = \dots\dots\dots$ (a) $15^\circ$ (b) $30^\circ$ (c) $45^\circ$ (d) $60^\circ$	C
18	If $\sin 30^\circ = \cos \theta$ where $\theta$ is an acute angle , then $m(\angle \theta) = \dots\dots\dots$ (a) $45^\circ$ (b) $10^\circ$ (c) $60^\circ$ (d) $30^\circ$	C
19	If $\sin X = \cos 30^\circ$ where $X$ is an acute angle , then $m(\angle X) = \dots\dots\dots^\circ$ (a) 10 (b) 30 (c) 45 (d) 60	D
20	In $\Delta ABC$ , if $m(\angle A) = 85^\circ$ , $\sin B = \cos B$ , then $m(\angle C) = \dots\dots\dots^\circ$ (a) 30 (b) 45 (c) 50 (d) 60	C
21	In $\Delta ABC$ , if $m(\angle B) = 90^\circ$ , then $\sin A + \cos C = \dots\dots\dots$ (a) $2 \sin A$ (b) $2 \sin C$ (c) $2 \sin B$ (d) $2 \cos A$	A
22	In $\Delta ABC$ if $m(\angle B) = 90^\circ$ , $\sin A = \frac{4}{5}$ , then $\sin C = \dots\dots\dots$ (a) $\frac{4}{5}$ (b) $\frac{5}{4}$ (c) $\frac{3}{5}$ (d) $\frac{5}{3}$	C
23	If $ABC$ is a right-angled triangle at $B$ , then $\frac{BC}{AC} = \dots\dots\dots$ (a) $\cos C$ (b) $\cos A$ (c) $\tan C$ (d) $\tan A$	A



24	In $\Delta ABC$ , if $m(\angle B) = 90^\circ$ , $AB = 3$ cm. , $BC = 4$ cm. , then $\sin A \cos C = \dots\dots\dots$ (a) 1 (b) $\frac{9}{25}$ (c) $\frac{12}{25}$ (d) $\frac{16}{25}$	D
25	The length of the line segment which is drawn between the two points $(0, 0)$ , $(5, 12)$ equals $\dots\dots\dots$ (a) 5 (b) 7 (c) 12 (d) 13	D
26	The distance between the two points $(5, 0)$ , $(0, 12)$ equals $\dots\dots\dots$ length unit. (a) 5 (b) 13 (c) 17 (d) 7	B
27	The distance between the two points $(5, 0)$ , $(0, -12)$ equals $\dots\dots\dots$ length unit. (a) 12 (b) 13 (c) 17 (d) 5	B
28	The distance between the point $A = (2, -5)$ and the point $B = (5, -1)$ equals $\dots\dots\dots$ unit length. (a) 5 (b) 2 (c) -5 (d) -3	A
29	If $A = (0, 0)$ , $B = (3, 4)$ , then the length of $\overline{AB} = \dots\dots\dots$ length unit. (a) 3 (b) 4 (c) 5 (d) 6	C
30	The distance between the point $(4, 3)$ and the origin point equals $\dots\dots\dots$ units. (a) 3 (b) 5 (c) 4 (d) 7	B
31	The distance between the point $(-3, 4)$ and the point of origin equals $\dots\dots\dots$ (a) -3 (b) 4 (c) 5 (d) -5	C
32	The distance between the point $(3, -4)$ and the origin point equals $\dots\dots\dots$ unit length. (a) 3 (b) 4 (c) 5 (d) 7	C
33	The distance between the point $(3, -4)$ and $X$ -axis = $\dots\dots\dots$ length unit. (a) 3 (b) 5 (c) 4 (d) -4	C
34	The distance between the point $(4, -3)$ and the $X$ -axis equals $\dots\dots\dots$ length unit. (a) -3 (b) 3 (c) 4 (d) 5	B



35	The distance between the point $(2, -2)$ and the y-axis = ..... length unit. (a) $-2$ (b) $2$ (c) $2\sqrt{2}$ (d) $4$	B
36	If the origin point is a centre of a circle of diameter length 6 length unit , then the point which belongs to the circle is ..... (a) $(6, 0)$ (b) $(0, -6)$ (c) $(\sqrt{8}, 1)$ (d) $(1, \sqrt{5})$	C
37	If the distance between the point $(a, 0)$ and the point $(0, 1)$ equals one length unit , then $a =$ ..... (a) $-1$ (b) $0$ (c) $1$ (d) $2$	B
38	The points $(-3, 0)$ , $(0, 3)$ , $(3, 0)$ are the vertices of ..... (a) a scalene triangle. (b) an equilateral triangle. (c) an obtuse-angled triangle. (d) a right-angled triangle and isosceles.	D
39	If A $(1, 2)$ and B $(3, 4)$ , then the coordinates of the midpoint of $\overline{AB}$ is ..... (a) $(1, 3)$ (b) $(3, 3)$ (c) $(2, 3)$ (d) $(3, 2)$	C
40	The coordinates of the midpoint of the line segment joining the two points $(3, -8)$ , $(-3, 4)$ is ..... (a) $(0, -4)$ (b) $(0, -2)$ (c) $(0, 4)$ (d) $(0, 2)$	B
41	If A $= (-1, 2)$ , B $= (5, -2)$ , then the midpoint of $\overline{AB} =$ ..... (a) $(2, 2)$ (b) $(2, 0)$ (c) $(3, 2)$ (d) $(4, 0)$	B
42	) If $\overline{AB}$ is a diameter in a circle where A $(3, -5)$ and B $(5, 1)$ , then the centre of the circle is ..... (a) $(4, -2)$ (b) $(4, 2)$ (c) $(2, 2)$ (d) $(8, 2)$	A
43	) $\overline{AB}$ is a diameter in a circle where A $(3, 6)$ , B $(5, -2)$ , then the coordinates of the centre of the circle are ..... (a) $(4, 2)$ (b) $(4, 6)$ (c) $(8, 4)$ (d) $(2, 8)$	A
44	) If the point $(0, 4)$ is the midpoint of the two points $(-1, -1)$ , $(X, y)$ , then the point $(X, y)$ is ..... (a) $(1, 9)$ (b) $(-1, 9)$ (c) $(-\frac{1}{2}, \frac{3}{2})$ (d) $(-1, 3)$	A



45	If $(4, -3)$ is the midpoint of $\overline{AB}$ where $A(3, -4)$ , then the coordinates of B is ..... (a) $(5, -2)$ (b) $(2, 5)$ (c) $(5, 2)$ (d) $(3.5, -3.5)$	A
46	The slope of the straight line which is parallel to the X-axis is ..... (a) $-1$ (b) zero. (c) $1$ (d) undefined.	B
47	The slope of the straight line which is parallel to the y-axis is ..... (a) $-1$ (b) zero (c) $1$ (d) undefined.	D
48	Slope of the line which makes with the positive direction of the X-axis angle of measure $\theta$ equals ..... (where $\theta$ is the positive measure) (a) $\sin \theta$ (b) $\sin^2 \theta$ (c) $\tan \theta$ (d) $\cos \theta$	C
49	The product of the two slopes of two perpendicular lines equal to ..... (a) $-\frac{1}{2}$ (b) $\frac{1}{2}$ (c) $1$ (d) $-1$	D
50	If $\overrightarrow{AB} \parallel \overrightarrow{CD}$ and the slope of $\overrightarrow{CD}$ equals $\frac{1}{2}$ , then the slope of $\overrightarrow{AB}$ equals ..... (a) $-2$ (b) $-\frac{1}{2}$ (c) $\frac{1}{2}$ (d) $2$	C
51	If $\overrightarrow{AB} \parallel \overrightarrow{CD}$ and the slope of $\overrightarrow{AB} = \frac{2}{3}$ , then the slope of $\overrightarrow{CD}$ equals ..... (a) $-\frac{3}{2}$ (b) $-\frac{2}{3}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$	C
52	If $\overrightarrow{AB} \perp \overrightarrow{CD}$ and the slope of $\overrightarrow{AB} = \frac{3}{5}$ , then the slope $\overrightarrow{CD} =$ ..... (a) $-\frac{5}{3}$ (b) $\frac{5}{3}$ (c) $\frac{3}{5}$ (d) $\frac{9}{25}$	A
53	If $\overrightarrow{AB} \perp \overrightarrow{CD}$ , and then slope of $\overrightarrow{AB} = \frac{1}{2}$ , then the slope of $\overrightarrow{DC} =$ ..... (a) $-2$ (b) $2$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$	A
54	If $\overrightarrow{LM} \perp \overrightarrow{EO}$ , $E(-1, 2)$ , $O(0, 0)$ , then the slope of $\overrightarrow{LM}$ equals ..... (a) $-2$ (b) $-\frac{1}{2}$ (c) $\frac{1}{2}$ (d) $2$	C
55	If $-\frac{2}{3}$ , $\frac{k}{2}$ are the slopes of two parallel straight lines, then $k =$ ..... (a) $-\frac{4}{3}$ (b) $-\frac{3}{4}$ (c) $\frac{1}{3}$ (d) $3$	A

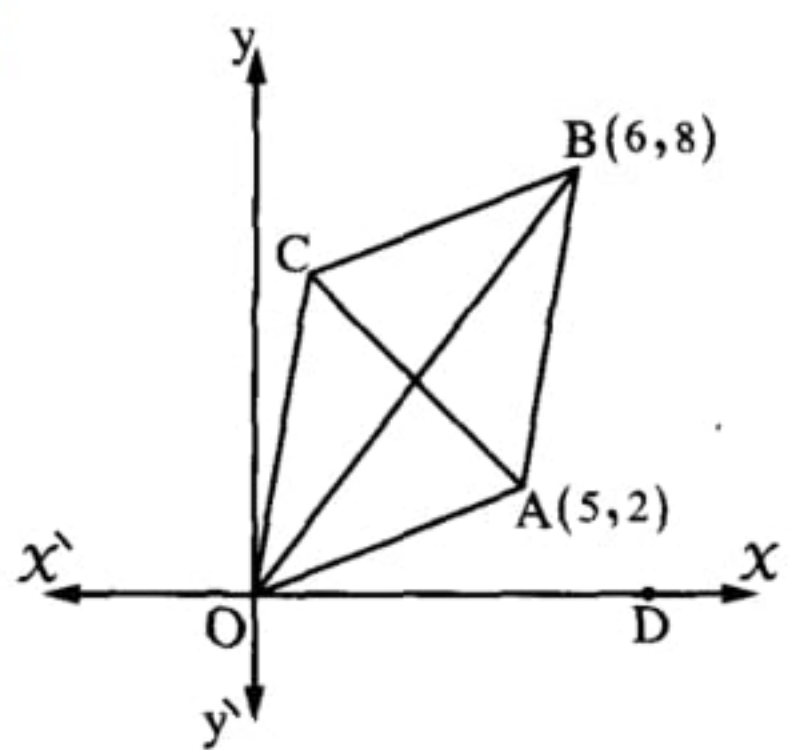


56	If $\frac{2}{3}$ , $\frac{k}{3}$ are the slopes of two parallel straight lines , then k = ..... (a) $\frac{2}{9}$ (b) $\frac{9}{2}$ (c) 2 (d) - 2	C
57	If the two straight lines $L_1$ , $L_2$ are parallel and the slope of $L_1 = \frac{3}{4}$ , then the slope of $L_2 =$ ..... (a) $\frac{3}{4}$ (b) $-\frac{3}{4}$ (c) $\frac{4}{3}$ (d) $-\frac{4}{3}$	A
58	The slope of the straight line whose equation : $2x - 3y + 5 = 0$ equals ..... (a) $-\frac{3}{2}$ (b) $-\frac{2}{3}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$	C
59	The slope of the straight line whose equation is : $3y = 5 - 2x$ equals ..... (a) $-\frac{3}{2}$ (b) $\frac{2}{3}$ (c) $-\frac{2}{3}$ (d) $\frac{3}{2}$	C
60	The straight line passing through two points $(-1, -1)$ , $(4, 4)$ makes positive angle with the positive direction to the X-axis an angle measure = .....° (a) 30 (b) 45 (c) 60 (d) 135	B
61	If the equation of the straight line is : $ax - by + c = 0$ , $b \neq 0$ , then its slope m = ..... (a) $\frac{b}{a}$ (b) $-\frac{a}{b}$ (c) $-\frac{b}{a}$ (d) $\frac{a}{b}$	D
62	The straight line whose equation is : $x - 3y - 6 = 0$ intercepts from the y-axis a part of length ..... (a) - 6 (b) - 2 (c) $\frac{1}{3}$ (d) 2	D
63	The straight line whose equation is : $2x - 3y + 6 = 0$ intercepts from the y-axis a part of length ..... (a) 6 (b) 4 (c) 2 (d) - 6	C
64	The line whose equation : $3x + 4y - 5 = 0$ intersects a part of y-axis its length = ..... units. (a) 5 (b) - 5 (c) $\frac{5}{4}$ (d) $-\frac{4}{3}$	C



65	The straight line whose equation is : $2y - 4x = 6$ intercepts from the y-axis a part of length = ..... units. (a) 2 (b) 3 (c) 4 (d) 6	B
66	The straight line whose equation is : $3y = 2x + 6$ cuts a part from the y-axis with length equals ..... unit of length. (a) 6 (b) 3 (c) 2 (d) $\frac{2}{3}$	C
67	The line : $2y = 3x + 12$ cuts from the y-axis part of length ..... units. (a) 12 (b) 3 (c) 2 (d) 6	D
68	The equation of the straight line whose slope 1 and passing through the origin point is ..... (a) $x = -1$ (b) $y = -1$ (c) $y = -x$ (d) $y = x$	D
69	The equation of the straight line whose its slope = 2 and passes through the origin point is ..... (a) $x = 2$ (b) $y = 2$ (c) $y = 2x$ (d) $y = -2x$	C
70	The equation of the straight line which passes through the origin point and its slope = 3 is ..... (a) $y = 3x$ (b) $x = 3$ (c) $y = 3$ (d) $y = \frac{1}{3}$	A
71	The equation of the straight line which passes through the point $(2, -3)$ , parallel to x-axis is ..... (a) $x = -2$ (b) $y = -3$ (c) $x = 2$ (d) $y = 3$	B
72	If the two straight lines : $3x - 4y - 3 = 0$ , $ky + 3x - 8 = 0$ are parallel, then k = ..... (a) -4 (b) -3 (c) 3 (d) 4	A
73	The two straight lines : $x + y = 5$ , $kx + 2y = 0$ are parallel when k = ..... (a) 2 (b) -1 (c) 1 (d) -2	A



74	<p>If the two straight lines : <math>x + y = 5</math> and <math>kx + 2y = 0</math> are perpendicular , then <math>k = \dots\dots\dots</math></p> <p>(a) 2                      (b) 1                      (c) - 1                      (d) - 2</p>	D
75	<p>If the straight line whose equation : <math>x + 3y - 6 = 0</math> is perpendicular to the straight line whose equation : <math>ax - 3y + 7 = 0</math> , then <math>a = \dots\dots\dots</math></p> <p>(a) 2                      (b) 9                      (c) 4                      (d) 1</p>	B
76	<p>If the two straight lines : <math>3x - 4y - 5 = 0</math> and <math>kx - 3y + 8 = 0</math> are perpendicular , then <math>k = \dots\dots\dots</math></p> <p>(a) - 4                      (b) - 3                      (c) 3                      (d) 4</p>	A
77	<p>The area of the triangle in square units which is bounded by the straight lines <math>3x - 4y = 12</math> , <math>x = 0</math> , <math>y = 0</math> equals <math>\dots\dots\dots</math></p> <p>(a) 6                      (b) - 6                      (c) 12                      (d) - 12</p>	A
78	<p>OABC is a parallelogram where A (5 , 2) B (6 , 8) , O is the origin point.</p> <p>(1) The coordinates of the point C = <math>\dots\dots\dots</math></p> <p>(a) (2 , 5)                      (b) (1 , 5) (c) (1 , 6)                      (d) (2 , 6)</p> <p>(2) OB = <math>\dots\dots\dots</math> length unit.</p> <p>(a) 5                      (b) 6                      (c) 8                      (d) 10</p> <p>(3) <math>\tan m(\angle AOD) = \dots\dots\dots</math></p> <p>(a) 0.3                      (b) 0.4                      (c) 0.6                      (d) 0.8</p> <p>(4) The equation of <math>\overrightarrow{OC}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>y = 6x</math>                      (b) <math>y = -6x</math>                      (c) <math>y = x</math>                      (d) <math>y = -x</math></p> <p>(5) The equation of the straight line passing through the origin point and perpendicular to <math>\overrightarrow{OB}</math> <math>\dots\dots\dots</math></p> <p>(a) <math>y = \frac{4}{3}x</math>                      (b) <math>y = \frac{3}{4}x</math>                      (c) <math>y = -\frac{4}{3}x</math>                      (d) <math>y = -\frac{3}{4}x</math></p> <p>(6) <math>\cos m(\angle BOD) = \dots\dots\dots</math></p> <p>(a) 0.8                      (b) 0.7                      (c) 0.6                      (d) 0.4</p>	 <p>C</p> <p>D</p> <p>B</p> <p>A</p> <p>D</p> <p>C</p>

**[ A ] Choose the correct Answer :**

<b>1</b>	If $X = \{5\}$ and $Y = \{3\}$ , then $n (X \times Y) = \dots\dots\dots$ (a) 15 (b) 5 (c) 3 (d) 1	
<b>2</b>	If $X = \{7\}$ , $Y = \{5\}$ , then $n (X \times Y) = \dots\dots\dots$ (a) 1 (b) 2 (c) zero (d) 35	
<b>3</b>	If $n (X) = 2$ , $Y = \{1 , 2\}$ , then $n (X \times Y) = \dots\dots\dots$ (a) 4 (b) 3 (c) 5 (d) 6	
<b>4</b>	If $n (X) = 3$ , $n (X \times Y) = 12$ , then $n (Y) = \dots\dots\dots$ (a) 15 (b) 36 (c) 4 (d) 9	
<b>5</b>	If $n (X^2) = 4$ , $n (X \times Y) = 12$ , then $n (Y) = \dots\dots\dots$ (a) 3 (b) 6 (c) 4 (d) 12	
<b>6</b>	If $X = \{2 , 3 , 4\}$ , then $n (X^2) = \dots\dots\dots$ (a) 3 (b) 6 (c) 9 (d) 12	
<b>7</b>	If $X = \{2\}$ , then $X^2 = \{ \dots\dots\dots \}$ (a) (2 , 2) (b) (2 , 0) (c) (0 , 2) (d) (2 , -2)	
<b>8</b>	If $(2 , 9) \in \{2 , 8\} \times \{x , 4\}$ , then $x = \dots\dots\dots$ (a) 8 (b) 6 (c) 9 (d) 2	
<b>9</b>	If $\{2\} \times \{x , y\} = \{(2 , 4) , (2 , 3)\}$ , then $x - y = \dots\dots\dots$ (a) 1 (b) -1 (c) $\pm 1$ (d) zero	
<b>10</b>	The set of images elements of the domain of the function is called ..... (a) the rule. (b) the domain. (c) the range. (d) the codomain.	
<b>11</b>	The point (4 , -5) lies in the ..... quadrant. (a) first (b) second (c) third (d) fourth	



<b>12</b>	If the point $(X - 4, 2 - X)$ where $X \in \mathbb{Z}$ is located in the third quadrant , then $X$ equals .....	(a) 2	(b) 3	(c) 4	(d) 6
<b>13</b>	If the point $(X - 5, 7 - X)$ lies in the second quadrant , then $X = \dots\dots\dots$	(a) 5	(b) 3	(c) 7	(d) 9
<b>14</b>	If the point $(X, 2)$ lies on y-axis , then $X + 3 = \dots\dots\dots$	(a) 3	(b) zero	(c) 2	(d) 5
<b>15</b>	if $(X - 2, 13) = (7, y + 5)$ , then $\sqrt{X + 2y} = \dots\dots\dots$	(a) 2	(b) 5	(c) 7	(d) 13
<b>16</b>	If $(X - 1, 11) = (8, y + 3)$ , then $\sqrt{X + 2y} = \dots\dots\dots$	(a) 7	(b) 5	(c) 4	(d) 3
<b>17</b>	If the point $(a, 3)$ lies on the straight line which represents the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ , where $f(X) = 4X - 5$ , then $a$ equals .....	(a) 2	(b) 4	(c) 5	(d) - 1
<b>18</b>	If the point $(a, 2)$ lies on the straight line which represents the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ where $f(X) = 3X - 1$ , then $a = \dots\dots\dots$	(a) 2	(b) 3	(c) 1	(d) - 1
<b>19</b>	The function $f$ where $f(X) = X^4 - 2X^3 + 7$ is polynomial of degree .....	(a) first.	(b) second.	(c) third.	(d) fourth.
<b>20</b>	The function $f$ where $f(X) = X(X - 4) + 1$ is a polynomial of the ..... degree.	(a) first	(b) second	(c) third	(d) fourth
<b>21</b>	If $f : \mathbb{R} \longrightarrow \mathbb{R}$ , then the function $f$ where $f(X) = X^2 - (X^2 - 3X)$ is of the ..... degree.	(a) first	(b) second	(c) third	(d) fourth
<b>22</b>	$f(X) = X(3X + 2)^2$ is function of ..... degree.	(a) third	(b) second	(c) first	(d) otherwise



23	If (2, b) satisfies the function $f$ where $f(x) = 3x - 6$ , then $b = \dots\dots\dots$ (a) zero (b) 7 (c) 9 (d) 2
24	If $f(x) = kx + 8$ , $f(2) = \text{zero}$ , then $k = \dots\dots\dots$ (a) 8 (b) 6 (c) 4 (d) -4
25	The function $f$ where $f(x) = 5x$ is represented graphically by a straight line passes through the point $\dots\dots\dots$ (a) (5, 5) (b) (0, 0) (c) (0, 5) (d) (5, 0)
26	If $3a = -4b$ , then $\frac{a}{b} = \dots\dots\dots$ (a) $-\frac{4}{3}$ (b) $-\frac{3}{4}$ (c) $\frac{3}{4}$ (d) $\frac{4}{3}$
27	If $6a - 5b = 0$ , then $\frac{a}{b} = \dots\dots\dots$ (a) $\frac{6}{5}$ (b) $\frac{5}{6}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$
28	If $\frac{a}{b} = \frac{5}{3}$ , then $\frac{3a}{5b}$ equals $\dots\dots\dots$ (a) $\frac{5}{3}$ (b) 1 (c) 3 (d) 15
29	If $3a = \frac{5}{6}b$ , then $\frac{a}{b} = \dots\dots\dots$ (a) $\frac{18}{5}$ (b) $\frac{5}{2}$ (c) $\frac{2}{5}$ (d) $\frac{5}{18}$
30	If $\frac{x}{2} = \frac{y}{3}$ , then $\frac{3x}{2y} = \dots\dots\dots$ (a) zero (b) 1 (c) 2 (d) 3
31	If $\frac{a}{3} = \frac{b}{2} = \frac{2a+b}{x}$ , then $x = \dots\dots\dots$ (a) 8 (b) 4 (c) 3 (d) 1
32	If $\frac{x}{8} = \frac{y}{7} = \frac{x+y}{3k}$ , then $k = \dots\dots\dots$ (a) 15 (b) 8 (c) 5 (d) 7
33	The equality of two ratios or more is called the $\dots\dots\dots$ (a) function. (b) direct variation. (c) inverse variation. (d) proportion.

<b>34</b>	The first proportional for the numbers : 7 , 10 , 14 is ..... (a) 5                      (b) 7                      (c) 10                      (d) $\frac{7}{10}$	
<b>35</b>	If 4 , $x$ , 12 , 18 are proportional , then $x =$ ..... (a) 2                      (b) 3                      (c) 6                      (d) 54	
<b>36</b>	The third proportional of the numbers : 4 , 3 , ... , 6 is ..... (a) 2                      (b) 4                      (c) 5                      (d) 8	
<b>37</b>	The fourth proportional of the quantities : 9 , 21 , 15 , ... is ..... (a) 14                      (b) 28                      (c) 35                      (d) 42	
<b>38</b>	The third proportion of the two numbers 3 and 6 is ..... (a) $\frac{1}{2}$ (b) 2                      (c) 6                      (d) 12	
<b>39</b>	The positive middle proportion between 3 and 27 is ..... (a) 3                      (b) 4                      (c) 8                      (d) 9	
<b>40</b>	If 2 , 6 , $x + 15$ are proportional , then $x =$ ..... (a) 1                      (b) 2                      (c) 3                      (d) 4	
<b>41</b>	If 3 , $x$ and $\frac{1}{y}$ are in continued proportion , then $y \propto$ ..... (a) $x$ (b) $\frac{1}{x}$ (c) $x^2$ (d) $\frac{1}{x^2}$	
<b>42</b>	If 1 , $x$ , 4 in continued proportion , then $x =$ ..... (a) $\pm 1$ (b) $\pm 2$ (c) $\pm 4$ (d) $\pm 3$	
<b>43</b>	) If $y$ varies inversely with $x$ and $y = 4$ when $x = 3$ , then $y =$ ..... when $x = 2$ (a) 4                      (b) 3                      (c) 6                      (d) 12	
<b>44</b>	If $y = 4x$ , then ..... (a) $y \propto \frac{1}{x}$ (b) $x \propto \frac{1}{y}$ (c) $y \propto x$ (d) otherwise.	
<b>45</b>	If $y = 2x$ , then $y \propto$ ..... (a) $\frac{1}{x}$ (b) $x^2$ (c) $\frac{1}{x^2}$ (d) $x$	

<b>46</b>	If $\frac{x}{y} = 1$ , then $y \propto$ ..... (a) $x - 1$ (b) $x + 1$ (c) $\frac{1}{x}$ (d) $x$	
<b>47</b>	If $xy = 2$ , then ..... (a) $x \propto \frac{1}{y}$ (b) $x \propto y$ (c) $x \propto 2y$ (d) $x = 2y$	
<b>48</b>	If $xy^2 = a$ where $a$ is a constant $\neq$ zero , then $x$ varies inversely with ..... (a) $\frac{1}{y^2}$ (b) $\frac{1}{y}$ (c) $y$ (d) $y^2$	
<b>49</b>	If $2x - 3y = 2y - 5x$ , then $x \propto$ ..... (a) $y^2$ (b) $\frac{1}{y^2}$ (c) $\frac{1}{y}$ (d) $y$	
<b>50</b>	The relation represents the direct variation between the two variables $x$ and $y$ which is ..... (a) $xy = 5$ (b) $y = x + 3$ (c) $\frac{x}{3} = \frac{4}{y}$ (d) $\frac{x}{5} = \frac{y}{2}$	
<b>51</b>	If $y^2 + 4x^2 = 4xy$ , then ..... (a) $y \propto x$ (b) $y \propto x^2$ (c) $y \propto \frac{1}{x}$ (d) $y \propto \frac{1}{x^2}$	
<b>52</b>	If $4x^2 - 12xy + 9y^2 = 0$ , then $y \propto$ ..... (a) $x$ (b) $x^2$ (c) $\frac{1}{x}$ (d) $\frac{1}{x^2}$	
<b>53</b>	If $x^2 - 4xy + 4y^2 = 0$ , then ..... (a) $x \propto y$ (b) $x \propto \frac{1}{y}$ (c) $x \propto y^2$ (d) $x \propto \frac{1}{y^2}$	
<b>54</b>	One of the measurements of dispersion is the ..... (a) arithmetic mean.                      (b) median.                      (c) range.                      (d) mode.	
<b>55</b>	The simplest and easiest dispersion measure is the ..... (a) range.                      (b) arithmetic.                      (c) median.                      (d) mode.	
<b>56</b>	The range of the set of the values : 7 , 3 , 6 , 9 and 5 equals ..... (a) 3                      (b) 4                      (c) 6                      (d) 12	

<b>57</b>	The range of the set of the values : 3 , 4 , 6 , 9 , and 12 equals .....	
	(a) 15                      (b) 9                      (c) 5                      (d) 3	
<b>58</b>	The range of the set of the values : 5 , 14 , 21 , 4 , 16 , 12 is .....	
	(a) 17                      (b) 15                      (c) 13                      (d) 11	
<b>59</b>	The range of the set of the values : 5 , 13 , 4 , 19 and 16 is .....	
	(a) 19                      (b) 16                      (c) 14                      (d) 15	
<b>60</b>	The range of the set of values : 23 , 22 , 15 , 18 , 17 is .....	
	(a) 8                      (b) 18                      (c) 19                      (d) 23	
<b>61</b>	The difference between the largest and smallest value for a set of values is the .....	
	(a) arithmetic mean.    (b) range.                      (c) median.                      (d) mode.	
<b>62</b>	The difference between the maximum and minimum value is called the .....	
	(a) range.                      (b) mean.                      (c) median.                      (d) standard deviation.	
<b>63</b>	The difference between the greatest value and the smallest value is .....	
	(a) the range.                      (b) the mean.                      (c) the median.                      (d) the standard defiation.	
<b>64</b>	The set which has the greatest dispersion in the following sets is .....	
	(a) 28 , 17 , 30 , 36 , 20                      (b) 20 , 19 , 29 , 37 , 43 (c) 31 , 35 , 26 , 37 , 41                      (d) 25 , 39 , 19 , 5 , 27	
<b>65</b>	The arithmetic mean of the set of the values : 6 , 2 , 8 and 4 = .....	
	(a) 5                      (b) 6                      (c) 10                      (d) 20	
<b>66</b>	The mean of the values : 2 , 3 , 7 , 8 , 10 = .....	
	(a) 3                      (b) 5                      (c) 2                      (d) 6	
<b>67</b>	The arithmetic mean of the set of the values : 7 , 3 , 6 , 9 and 5 equals .....	
	(a) 3                      (b) 4                      (c) 6                      (d) 12	
<b>68</b>	The arithmetic mean of the set of the values : 7 , 6 , 5 , 13 , 4 is .....	
	(a) 9                      (b) 15                      (c) 6                      (d) 7	



<b>69</b>	The arithmetic mean of the values : 12 , 24 , 26 , 38 and 20 is ..... (a) 12                      (b) 24                      (c) 26                      (d) 38	
<b>70</b>	The positive square root of the average of the squares of deviations of the values from their arithmetic mean is called ..... (a) the range.                      (b) the arithmetic mean. (c) the median.                      (d) the standard deviation.	
<b>71</b>	If all the individuals are equal in values then ..... (a) $\Sigma (X - \bar{X}) > \text{zero}$ (b) $\Sigma (X - \bar{X}) < \text{zero}$ (c) $\sigma = \text{zero}$ (d) $\bar{X} = \text{zero}$	
<b>72</b>	If $\Sigma (X - \bar{X})^2 = 36$ for a set of values whose number is 9 , then $\sigma =$ ..... (a) 2                      (b) 4                      (c) 18                      (d) 27	
<b>73</b>	If $\Sigma (X - \bar{X})^2 = 28$ for a set of values whose number is 7 , then $\sigma =$ ..... (a) 2                      (b) 4                      (c) 7                      (d) 14	
<b>74</b>	If the standard deviation of the set of values = 2 and number of these values = 6 , then $\Sigma (X - \bar{X})^2 =$ ..... (a) 12                      (b) 18                      (c) 24                      (d) 36	

**Choose the correct Answers**

<b>Sn.</b>	<b>Answer</b>	<b>Sn.</b>	<b>Answer</b>	<b>Sn.</b>	<b>Answer</b>	<b>Sn.</b>	<b>Answer</b>
<b>1</b>	<b>D</b>	<b>21</b>	<b>A</b>	<b>41</b>	<b>C</b>	<b>61</b>	<b>B</b>
<b>2</b>	<b>A</b>	<b>22</b>	<b>A</b>	<b>42</b>	<b>B</b>	<b>62</b>	<b>A</b>
<b>3</b>	<b>A</b>	<b>23</b>	<b>A</b>	<b>43</b>	<b>C</b>	<b>63</b>	<b>A</b>
<b>4</b>	<b>C</b>	<b>24</b>	<b>D</b>	<b>44</b>	<b>C</b>	<b>64</b>	<b>D</b>
<b>5</b>	<b>B</b>	<b>25</b>	<b>B</b>	<b>45</b>	<b>D</b>	<b>65</b>	<b>A</b>
<b>6</b>	<b>C</b>	<b>26</b>	<b>A</b>	<b>46</b>	<b>D</b>	<b>66</b>	<b>D</b>
<b>7</b>	<b>A</b>	<b>27</b>	<b>B</b>	<b>47</b>	<b>A</b>	<b>67</b>	<b>C</b>
<b>8</b>	<b>C</b>	<b>28</b>	<b>B</b>	<b>48</b>	<b>D</b>	<b>68</b>	<b>D</b>
<b>9</b>	<b>C</b>	<b>29</b>	<b>D</b>	<b>49</b>	<b>D</b>	<b>69</b>	<b>B</b>
<b>10</b>	<b>C</b>	<b>30</b>	<b>B</b>	<b>50</b>	<b>D</b>	<b>70</b>	<b>D</b>
<b>11</b>	<b>D</b>	<b>31</b>	<b>A</b>	<b>51</b>	<b>A</b>	<b>71</b>	<b>C</b>
<b>12</b>	<b>B</b>	<b>32</b>	<b>C</b>	<b>52</b>	<b>A</b>	<b>72</b>	<b>A</b>
<b>13</b>	<b>B</b>	<b>33</b>	<b>D</b>	<b>53</b>	<b>A</b>	<b>73</b>	<b>A</b>
<b>14</b>	<b>A</b>	<b>34</b>	<b>A</b>	<b>54</b>	<b>C</b>	<b>74</b>	<b>C</b>
<b>15</b>	<b>B</b>	<b>35</b>	<b>C</b>	<b>55</b>	<b>A</b>	<b>75</b>	
<b>16</b>	<b>B</b>	<b>36</b>	<b>D</b>	<b>56</b>	<b>C</b>	<b>76</b>	
<b>17</b>	<b>A</b>	<b>37</b>	<b>C</b>	<b>57</b>	<b>B</b>	<b>77</b>	
<b>18</b>	<b>C</b>	<b>38</b>	<b>D</b>	<b>58</b>	<b>A</b>	<b>78</b>	
<b>19</b>	<b>D</b>	<b>39</b>	<b>D</b>	<b>59</b>	<b>D</b>	<b>79</b>	
<b>20</b>	<b>B</b>	<b>40</b>	<b>C</b>	<b>60</b>	<b>A</b>	<b>80</b>	

**( 8 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

**[ A ] Choose the correct Answer :**

<b>1</b>	$\tan 45^\circ = \dots\dots\dots$ (a) $\sqrt{3}$ (b) 1 (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{2}$	
<b>2</b>	$\tan^2 45^\circ = \dots\dots\dots$ (a) $\sqrt{3}$ (b) $\frac{1}{\sqrt{3}}$ (c) 1 (d) $\frac{1}{2}$	
<b>3</b>	$\sqrt{2} \sin 30^\circ = \dots\dots\dots$ (a) $\sin 45^\circ$ (b) $\sin 60^\circ$ (c) $\cos 30^\circ$ (d) $\cos 60^\circ$	
<b>4</b>	$\tan 45^\circ \sin 30^\circ = \dots\dots\dots$ (a) $\frac{1}{2}$ (b) 1 (c) $\frac{2}{3}$ (d) $\frac{\sqrt{3}}{2}$	
<b>5</b>	$2 \sin 30^\circ \cos 30^\circ = \dots\dots\dots$ (a) $\sin 60^\circ$ (b) $\cos 60^\circ$ (c) $\tan 60^\circ$ (d) $\tan 30^\circ$	
<b>6</b>	$4 \cos 30^\circ \tan 60^\circ = \dots\dots\dots$ (a) 3 (b) $2\sqrt{3}$ (c) 6 (d) 12	
<b>7</b>	$\sin 30^\circ + \cos 60^\circ + \tan 45^\circ = \dots\dots\dots$ (a) -2 (b) 1 (c) 1.5 (d) 2	
<b>8</b>	$2 \tan 45^\circ - \frac{1}{\cos 60^\circ} = \dots\dots\dots$ (a) zero (b) $\frac{1}{2}$ (c) $\frac{\sqrt{3}}{2}$ (d) 1	
<b>9</b>	If $\sin X = \frac{1}{2}$ where $X$ is a measure of an acute angle , then $X = \dots\dots\dots^\circ$ (a) 90 (b) 60 (c) 45 (d) 30	
<b>10</b>	If $\sin X = \frac{1}{2}$ , where $X$ is an acute angle. $\therefore \sin 2 X = \dots\dots\dots$ (a) 1 (b) 2 (c) $\frac{1}{2}$ (d) $\frac{\sqrt{3}}{2}$	
<b>11</b>	If $\cos X = \frac{1}{2}$ where $X$ is an acute angle , then $X = \dots\dots\dots$ (a) $30^\circ$ (b) $60^\circ$ (c) $90^\circ$ (d) $45^\circ$	

**( 9 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

<b>12</b>	If $\sin X = 1$ where $X$ is an angle , then $m (\angle X) = \dots\dots\dots^\circ$ (a) 30                      (b) 60                      (c) 45                      (d) 90	
<b>13</b>	If $\cos 2 X = \frac{1}{2}$ , $X$ is the measure of an acute angle , then $m (\angle X) = \dots\dots\dots^\circ$ (a) 15                      (b) 30                      (c) 45                      (d) 60	
<b>14</b>	If $\tan \frac{3 X}{2} = 1$ where $X$ is an acute angle , then $m (\angle X) = \dots\dots\dots$ (a) $10^\circ$ (b) $30^\circ$ (c) $45^\circ$ (d) $60^\circ$	
<b>15</b>	If $\tan 3 X = 1$ , where $X$ is an acute angle , then $3 X = \dots\dots\dots$ (a) $15^\circ$ (b) $20^\circ$ (c) $45^\circ$ (d) $60^\circ$	
<b>16</b>	If $\tan 3 X = \sqrt{3}$ where $3 X$ is an acute angle , then $m (\angle X) = \dots\dots\dots^\circ$ (a) 10                      (b) 20                      (c) 30                      (d) 60	
<b>17</b>	If $\tan (X + 15^\circ) = \sqrt{3}$ where $X$ is an acute angle , then $m (\angle X) = \dots\dots\dots$ (a) $15^\circ$ (b) $30^\circ$ (c) $45^\circ$ (d) $60^\circ$	
<b>18</b>	If $\sin 30^\circ = \cos \theta$ where $\theta$ is an acute angle , then $m (\angle \theta) = \dots\dots\dots$ (a) $45^\circ$ (b) $10^\circ$ (c) $60^\circ$ (d) $30^\circ$	
<b>19</b>	If $\sin X = \cos 30^\circ$ where $X$ is an acute angle , then $m (\angle X) = \dots\dots\dots^\circ$ (a) 10                      (b) 30                      (c) 45                      (d) 60	
<b>20</b>	In $\Delta ABC$ , if $m (\angle A) = 85^\circ$ , $\sin B = \cos B$ , then $m (\angle C) = \dots\dots\dots^\circ$ (a) 30                      (b) 45                      (c) 50                      (d) 60	
<b>21</b>	In $\Delta ABC$ , if $m (\angle B) = 90^\circ$ , then $\sin A + \cos C = \dots\dots\dots$ (a) $2 \sin A$ (b) $2 \sin C$ (c) $2 \sin B$ (d) $2 \cos A$	
<b>22</b>	In $\Delta ABC$ if $m (\angle B) = 90^\circ$ , $\sin A = \frac{4}{5}$ , then $\sin C = \dots\dots\dots$ (a) $\frac{4}{5}$ (b) $\frac{5}{4}$ (c) $\frac{3}{5}$ (d) $\frac{5}{3}$	
<b>23</b>	If ABC is a right-angled triangle at B , then $\frac{BC}{AC} = \dots\dots\dots$ (a) $\cos C$ (b) $\cos A$ (c) $\tan C$ (d) $\tan A$	



**( 10 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

<b>24</b>	In $\Delta ABC$ , if $m(\angle B) = 90^\circ$ , $AB = 3$ cm. , $BC = 4$ cm. , then $\sin A \cos C = \dots\dots\dots$ (a) 1                      (b) $\frac{9}{25}$ (c) $\frac{12}{25}$ (d) $\frac{16}{25}$	
<b>25</b>	The length of the line segment which is drawn between the two points $(0 , 0)$ , $(5 , 12)$ equals ..... (a) 5                      (b) 7                      (c) 12                      (d) 13	
<b>26</b>	The distance between the two points $(5 , 0)$ , $(0 , 12)$ equals ..... length unit. (a) 5                      (b) 13                      (c) 17                      (d) 7	
<b>27</b>	The distance between the two points $(5 , 0)$ , $(0 , - 12)$ equals ..... length unit. (a) 12                      (b) 13                      (c) 17                      (d) 5	
<b>28</b>	The distance between the point $A = (2 , - 5)$ and the point $B = (5 , - 1)$ equals ..... unit length. (a) 5                      (b) 2                      (c) - 5                      (d) - 3	
<b>29</b>	If $A = (0 , 0)$ , $B = (3 , 4)$ , then the length of $\overline{AB} = \dots\dots\dots$ length unit. (a) 3                      (b) 4                      (c) 5                      (d) 6	
<b>30</b>	The distance between the point $(4 , 3)$ and the origin point equals ..... units. (a) 3                      (b) 5                      (c) 4                      (d) 7	
<b>31</b>	The distance between the point $(- 3 , 4)$ and the point of origin equals ..... (a) - 3                      (b) 4                      (c) 5                      (d) - 5	
<b>32</b>	The distance between the point $(3 , - 4)$ and the origin point equals ..... unit length. (a) 3                      (b) 4                      (c) 5                      (d) 7	
<b>33</b>	The distance between the point $(3 , - 4)$ and $X$ -axis = ..... length unit. (a) 3                      (b) 5                      (c) 4                      (d) - 4	
<b>34</b>	The distance between the point $(4 , - 3)$ and the $X$ -axis equals ..... length unit. (a) - 3                      (b) 3                      (c) 4                      (d) 5	

**( 11 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

35	The distance between the point $(2, -2)$ and the y-axis = ..... length unit. (a) $-2$ (b) $2$ (c) $2\sqrt{2}$ (d) $4$	
36	If the origin point is a centre of a circle of diameter length 6 length unit, then the point which belongs to the circle is ..... (a) $(6, 0)$ (b) $(0, -6)$ (c) $(\sqrt{8}, 1)$ (d) $(1, \sqrt{5})$	
37	If the distance between the point $(a, 0)$ and the point $(0, 1)$ equals one length unit, then $a =$ ..... (a) $-1$ (b) $0$ (c) $1$ (d) $2$	
38	The points $(-3, 0)$ , $(0, 3)$ , $(3, 0)$ are the vertices of ..... (a) a scalene triangle. (b) an equilateral triangle. (c) an obtuse-angled triangle. (d) a right-angled triangle and isosceles.	
39	If A $(1, 2)$ and B $(3, 4)$ , then the coordinates of the midpoint of $\overline{AB}$ is ..... (a) $(1, 3)$ (b) $(3, 3)$ (c) $(2, 3)$ (d) $(3, 2)$	
40	The coordinates of the midpoint of the line segment joining the two points $(3, -8)$ , $(-3, 4)$ is ..... (a) $(0, -4)$ (b) $(0, -2)$ (c) $(0, 4)$ (d) $(0, 2)$	
41	If A $(-1, 2)$ , B $(5, -2)$ , then the midpoint of $\overline{AB} =$ ..... (a) $(2, 2)$ (b) $(2, 0)$ (c) $(3, 2)$ (d) $(4, 0)$	
42	If $\overline{AB}$ is a diameter in a circle where A $(3, -5)$ and B $(5, 1)$ , then the centre of the circle is ..... (a) $(4, -2)$ (b) $(4, 2)$ (c) $(2, 2)$ (d) $(8, 2)$	
43	If $\overline{AB}$ is a diameter in a circle where A $(3, 6)$ , B $(5, -2)$ , then the coordinates of the centre of the circle are ..... (a) $(4, 2)$ (b) $(4, 6)$ (c) $(8, 4)$ (d) $(2, 8)$	
44	If the point $(0, 4)$ is the midpoint of the two points $(-1, -1)$ , $(x, y)$ , then the point $(x, y)$ is ..... (a) $(1, 9)$ (b) $(-1, 9)$ (c) $(-\frac{1}{2}, \frac{3}{2})$ (d) $(-1, 3)$	

**( 12 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

<b>45</b>	1) If $(4, -3)$ is the midpoint of $\overline{AB}$ where $A(3, -4)$ , then the coordinates of $B$ is ..... (a) $(5, -2)$ (b) $(2, 5)$ (c) $(5, 2)$ (d) $(3.5, -3.5)$	
<b>46</b>	The slope of the straight line which is parallel to the $X$ -axis is ..... (a) $-1$ (b) zero.                      (c) $1$ (d) undefined.	
<b>47</b>	1) The slope of the straight line which is parallel to the $y$ -axis is ..... (a) $-1$ (b) zero                      (c) $1$ (d) undefined.	
<b>48</b>	1) Slope of the line which makes with the positive direction of the $X$ -axis angle of measure $\theta$ equals ..... (where $\theta$ is the positive measure) (a) $\sin \theta$ (b) $\sin^2 \theta$ (c) $\tan \theta$ (d) $\cos \theta$	
<b>49</b>	The product of the two slopes of two perpendicular lines equal to ..... (a) $-\frac{1}{2}$ (b) $\frac{1}{2}$ (c) $1$ (d) $-1$	
<b>50</b>	If $\overrightarrow{AB} \parallel \overrightarrow{CD}$ and the slope of $\overrightarrow{CD}$ equals $\frac{1}{2}$ , then the slope of $\overrightarrow{AB}$ equals ..... (a) $-2$ (b) $-\frac{1}{2}$ (c) $\frac{1}{2}$ (d) $2$	
<b>51</b>	1) If $\overrightarrow{AB} \parallel \overrightarrow{CD}$ and the slope of $\overrightarrow{AB} = \frac{2}{3}$ , then the slope of $\overrightarrow{CD}$ equals ..... (a) $-\frac{3}{2}$ (b) $-\frac{2}{3}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$	
<b>52</b>	1) If $\overrightarrow{AB} \perp \overrightarrow{CD}$ and the slope of $\overrightarrow{AB} = \frac{3}{5}$ , then the slope $\overrightarrow{CD} =$ ..... (a) $-\frac{5}{3}$ (b) $\frac{5}{3}$ (c) $\frac{3}{5}$ (d) $\frac{9}{25}$	
<b>53</b>	1) If $\overrightarrow{AB} \perp \overrightarrow{CD}$ , and then slope of $\overrightarrow{AB} = \frac{1}{2}$ , then the slope of $\overrightarrow{DC} =$ ..... (a) $-2$ (b) $2$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$	
<b>54</b>	1) If $\overrightarrow{LM} \perp \overrightarrow{EO}$ , $E(-1, 2)$ , $O(0, 0)$ , then the slope of $\overrightarrow{LM}$ equals ..... (a) $-2$ (b) $-\frac{1}{2}$ (c) $\frac{1}{2}$ (d) $2$	
<b>55</b>	1) If $-\frac{2}{3}$ , $\frac{k}{2}$ are the slopes of two parallel straight lines, then $k =$ ..... (a) $-\frac{4}{3}$ (b) $-\frac{3}{4}$ (c) $\frac{1}{3}$ (d) $3$	

**( 13 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

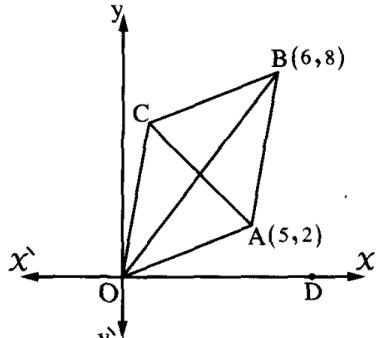
<b>56</b>	If $\frac{2}{3}$ , $\frac{k}{3}$ are the slopes of two parallel straight lines , then k = ..... (a) $\frac{2}{9}$ (b) $\frac{9}{2}$ (c) 2 (d) - 2	
<b>57</b>	If the two straight lines $L_1$ , $L_2$ are parallel and the slope of $L_1 = \frac{3}{4}$ , then the slope of $L_2 =$ ..... (a) $\frac{3}{4}$ (b) $\frac{-3}{4}$ (c) $\frac{4}{3}$ (d) $\frac{-4}{3}$	
<b>58</b>	The slope of the straight line whose equation : $2x - 3y + 5 = 0$ equals ..... (a) $\frac{-3}{2}$ (b) $\frac{-2}{3}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$	
<b>59</b>	The slope of the straight line whose equation is : $3y = 5 - 2x$ equals ..... (a) $\frac{-3}{2}$ (b) $\frac{2}{3}$ (c) $\frac{-2}{3}$ (d) $\frac{3}{2}$	
<b>60</b>	The straight line passing through two points $(-1, -1)$ , $(4, 4)$ makes positive angle with the positive direction to the $x$ -axis an angle measure = .....° (a) 30 (b) 45 (c) 60 (d) 135	
<b>61</b>	If the equation of the straight line is : $ax - by + c = 0$ , $b \neq 0$ , then its slope $m =$ ..... (a) $\frac{b}{a}$ (b) $\frac{-a}{b}$ (c) $\frac{-b}{a}$ (d) $\frac{a}{b}$	
<b>62</b>	The straight line whose equation is : $x - 3y - 6 = 0$ intercepts from the $y$ -axis a part of length ..... (a) - 6 (b) - 2 (c) $\frac{1}{3}$ (d) 2	
<b>63</b>	The straight line whose equation is : $2x - 3y + 6 = 0$ intercepts from the $y$ -axis a part of length ..... (a) 6 (b) 4 (c) 2 (d) - 6	
<b>64</b>	The line whose equation : $3x + 4y - 5 = 0$ intersects a part of $y$ -axis its length = ..... units. (a) 5 (b) - 5 (c) $\frac{5}{4}$ (d) $\frac{-4}{3}$	

**( 14 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term**

<b>65</b>	The straight line whose equation is : $2y - 4x = 6$ intercepts from the y-axis a part of length = ..... units. (a) 2                      (b) 3                      (c) 4                      (d) 6	
<b>66</b>	) The straight line whose equation is : $3y = 2x + 6$ cuts a part from the y-axis with length equals ..... unit of length. (a) 6                      (b) 3                      (c) 2                      (d) $\frac{2}{3}$	
<b>67</b>	) The line : $2y = 3x + 12$ cuts from the y-axis part of length ..... units. (a) 12                      (b) 3                      (c) 2                      (d) 6	
<b>68</b>	The equation of the straight line whose slope 1 and passing through the origin point is ..... (a) $x = -1$ (b) $y = -1$ (c) $y = -x$ (d) $y = x$	
<b>69</b>	The equation of the straight line whose its slope = 2 and passes through the origin point is ..... (a) $x = 2$ (b) $y = 2$ (c) $y = 2x$ (d) $y = -2x$	
<b>70</b>	The equation of the straight line which passes through the origin point and its slope = 3 is ..... (a) $y = 3x$ (b) $x = 3$ (c) $y = 3$ (d) $y = \frac{1}{3}$	
<b>71</b>	The equation of the straight line which passes through the point $(2, -3)$ , parallel to x-axis is ..... (a) $x = -2$ (b) $y = -3$ (c) $x = 2$ (d) $y = 3$	
<b>72</b>	If the two straight lines : $3x - 4y - 3 = 0$ , $ky + 3x - 8 = 0$ are parallel , then k = ..... (a) -4                      (b) -3                      (c) 3                      (d) 4	
<b>73</b>	) The two straight lines : $x + y = 5$ , $kx + 2y = 0$ are parallel when k = ..... (a) 2                      (b) -1                      (c) 1                      (d) -2	



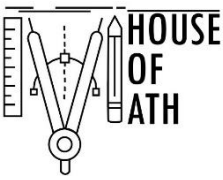
# ( 15 ) Final Revision - Geometry - 3<sup>Rd</sup>.Prep - First Term

74	<p>If the two straight lines : <math>x + y = 5</math> and <math>kx + 2y = 0</math> are perpendicular , then <math>k = \dots\dots\dots</math></p> <p>(a) 2                      (b) 1                      (c) - 1                      (d) - 2</p>	
75	<p>If the straight line whose equation : <math>x + 3y - 6 = 0</math> is perpendicular to the straight line whose equation : <math>ax - 3y + 7 = 0</math> , then <math>a = \dots\dots\dots</math></p> <p>(a) 2                      (b) 9                      (c) 4                      (d) 1</p>	
76	<p>If the two straight lines : <math>3x - 4y - 5 = 0</math> and <math>kx - 3y + 8 = 0</math> are perpendicular , then <math>k = \dots\dots\dots</math></p> <p>(a) - 4                      (b) - 3                      (c) 3                      (d) 4</p>	
77	<p>The area of the triangle in square units which is bounded by the straight lines <math>3x - 4y = 12</math> , <math>x = 0</math> , <math>y = 0</math> equals <math>\dots\dots\dots</math></p> <p>(a) 6                      (b) - 6                      (c) 12                      (d) - 12</p>	
78	<p>OABC is a parallelogram where A ( 5 , 2 ) B ( 6 , 8 ) , O is the origin point.</p> <p>(1) The coordinates of the point C = <math>\dots\dots\dots</math></p> <p>(a) ( 2 , 5 )                      (b) ( 1 , 5 ) (c) ( 1 , 6 )                      (d) ( 2 , 6 )</p> <p>(2) OB = <math>\dots\dots\dots</math> length unit.</p> <p>(a) 5                      (b) 6                      (c) 8                      (d) 10</p> <p>(3) <math>\tan m (\angle AOD) = \dots\dots\dots</math></p> <p>(a) 0.3                      (b) 0.4                      (c) 0.6                      (d) 0.8</p> <p>(4) The equation of <math>\overrightarrow{OC}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>y = 6x</math>                      (b) <math>y = -6x</math>                      (c) <math>y = x</math>                      (d) <math>y = -x</math></p> <p>(5) The equation of the straight line passing through the origin point and perpendicular to <math>\overrightarrow{OB}</math> <math>\dots\dots\dots</math></p> <p>(a) <math>y = \frac{4}{3}x</math>                      (b) <math>y = \frac{3}{4}x</math>                      (c) <math>y = -\frac{4}{3}x</math>                      (d) <math>y = -\frac{3}{4}x</math></p> <p>(6) <math>\cos m (\angle BOD) = \dots\dots\dots</math></p> <p>(a) 0.8                      (b) 0.7                      (c) 0.6                      (d) 0.4</p>	

## Choose the correct Answers

Sn.	Answer	Sn.	Answer	Sn.	Answer	Sn.	Answer
1	B	21	A	41	B	61	D
2	C	22	C	42	A	62	D
3	A	23	A	43	A	63	C
4	A	24	D	44	A	64	C
5	A	25	D	45	A	65	B
6	C	26	B	46	B	66	C
7	D	27	B	47	D	67	D
8	A	28	A	48	C	68	D
9	D	29	C	49	D	69	C
10	D	30	B	50	C	70	A
11	B	31	C	51	C	71	B
12	D	32	C	52	A	72	A
13	B	33	C	53	A	73	A
14	B	34	B	54	C	74	D
15	C	35	B	55	A	75	B
16	B	36	C	56	C	76	A
17	C	37	B	57	A	77	A
18	C	38	D	58	C	78	1)C – 2) D
19	D	39	C	59	C		3)B – 4)A
20	C	40	B	60	B		5)D – 6)C





## Final Revision

### Middle (3)

### Geometry

- 1) If  $\sin x = \frac{1}{2}$ ,  $x$  is an acute angle, then  $m(\angle x) = \dots\dots\dots$   
a)  $45^\circ$       b)  $60^\circ$       **c)  $30^\circ$**       d)  $90^\circ$
- 2) The distance between two points  $(3, 0)$  and  $(0, -4)$  equals  $\dots\dots\dots$  l.u  
a) 4      **b) 5**      c) 6      d) 7
- 3) If  $x + y = 5$  and  $kx + 2y = 0$  are perpendicular, then  $k = \dots\dots\dots$   
**a) -2**      b) -1      c) 1      d) 2
- 4) If  $A(5, 7)$  and  $B(1, -1)$ , then the midpoint of  $\overline{AB}$  is  $\dots\dots\dots$   
a)  $(2, 3)$       **b)  $(3, 3)$**       c)  $(3, 2)$       d)  $(3, 4)$
- 5) The equation of straight line which passes through the point  $(3, -5)$  and parallel to y-axis is  $\dots\dots\dots$   
**a)  $x = 3$**       b)  $y = -5$       c)  $y = 2$       d)  $x = -5$
- 6)  $2 \sin 30^\circ \tan 60^\circ = \dots\dots\dots$   
**a)  $\sqrt{3}$**       b) 3      c)  $\frac{\sqrt{3}}{3}$       d)  $\frac{1}{2}$
- 7) The equation of straight line which passes through the point  $(-2, -3)$  are parallel to x-axis is  $\dots\dots\dots$   
a)  $x = -2$       b)  $y = -2$       **c)  $y = -3$**       d)  $x = -3$
- 8) If  $\cos x = \frac{\sqrt{3}}{2}$ ,  $x$  is an acute angle, then  $\sin 2x = \dots\dots\dots$   
a) 1      b) -2      **c)  $\frac{\sqrt{3}}{2}$**       d)  $\frac{1}{\sqrt{3}}$
- 9) A circle of center at origin point and its radius is 2 l.u, which of the following points belong to circle?  
a)  $(1, -2)$       b)  $(-2, \sqrt{5})$       **c)  $(\sqrt{3}, 1)$**       d)  $(0, 1)$

- 10) The perpendicular distance between the two straight line :  $x - 2 = 0$   
and  $x + 3 = 0$  equals ..... l.u  
a) 1      **b) 5**      c) 2      d) 3
- 11)  $-\frac{3}{2}, \frac{6}{k}$  are the slopes of two parallel straight lines, the  $k =$  .....  
a) 6      **b) -4**      c) 2      d)  $\frac{3}{2}$
- 12) If  $\overrightarrow{AB} \perp \overrightarrow{CD}$  and the slope of  $\overrightarrow{AB} = \frac{1}{2}$ , then slope of  $\overrightarrow{CD} =$  .....  
a) 2      b)  $\frac{1}{2}$       **c) -2**      d)  $-\frac{1}{2}$
- 13)  $\tan 60^\circ \tan 30^\circ =$  .....  
a)  $\sin 30^\circ$       b)  $\tan 30^\circ$       **c)  $\tan 45^\circ$**       d)  $\cos 60^\circ$
- 14) The distance between the point (4, 3) and y-axis equals ..... l.u  
a) -3      b) -4      c) 3      **d) 4**
- 15) Points (0, 8), (0, 6), (0, 0) forms .....  
**a) Right angled triangle**      b) Obtuse angled triangle  
c) Acute angled triangle      d) collinear
- 16) If  $\overrightarrow{AB} \parallel \overrightarrow{CD}$  and slope of  $\overrightarrow{AB} = \frac{2}{3}$ , then slope  $\overrightarrow{CD} =$  .....  
a)  $\frac{3}{2}$       **b)  $\frac{2}{3}$**       c)  $-\frac{3}{2}$       d)  $-\frac{2}{3}$
- 17) If A, B are two acute angles and  $m(\angle A) = m(\angle B) = 90^\circ$ ,  $m(\angle A) \neq m(\angle B)$ ,  
then .....  
**a)  $\sin A = \cos B$**       b)  $\sin A = \sin B$   
c)  $\tan A = \tan B$       d)  $\cos A = \cos B$
- 18) If  $\cos \frac{x}{2} = \frac{1}{2}$  where  $\frac{x}{2}$  is measure of positive angle, then  $x =$  .....  
a)  $30^\circ$       b)  $90^\circ$       c)  $60^\circ$       **d)  $120^\circ$**
- 19) If  $\overrightarrow{CD}$  is parallel to y-axis where C (K, 4) and D (-5, 7) then K = .....  
a) 5      b) 7      **c) -5**      d) 4
- 20) The equation of straight line passing through origin point and it is slope = 1  
is.....  
**a)  $y = x$**       b)  $y = -x$       c)  $y = 2x$       d)  $y = 0$



21) If  $\cos(x + 25) = \frac{1}{2}$ ,  $x$  is measure of acute angle, then  $x = \dots\dots\dots$

- a)  $20^\circ$       b)  $35^\circ$       c)  $0$       d)  $5$

22) The straight line whose equation is  $3y = 2x - 6$ , its slope =  $\dots\dots\dots$

- a)  $2$       b)  $\frac{2}{3}$       c)  $6$       d)  $\frac{3}{2}$

23) If slope of straight line ( $L_1$ ) is  $\frac{a}{5}$  and slope of straight line ( $L_2$ ) is  $\frac{-b}{3}$

where  $a, b \neq 0$  and  $L_1 \perp L_2$ , then  $ab = \dots\dots\dots$

- a)  $\frac{3}{5}$       b)  $\frac{-3}{5}$       c)  $15$       d)  $-15$

24) The distance between the point  $(-2, -3)$  and x-axis  $\dots\dots\dots$  l.u

- a)  $2$       b)  $3$       c)  $-2$       d)  $-3$

25) If straight line whose equation is  $y = kx + 1$  is parallel to straight line whose equation is  $2y - x = 0$ , then  $k = \dots\dots\dots$

- a)  $1$       b)  $\frac{1}{2}$       c)  $4$       d)  $-2$

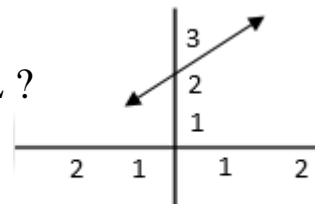
26) ABC is a triangle,  $m(\angle A) = 85^\circ$ ,  $\sin B = \cos B$ , then  $m(\angle C) = \dots\dots\dots$

- a)  $30^\circ$       b)  $45^\circ$       c)  $50^\circ$       d)  $60^\circ$

27) In the opposite figure

Which of the following represents the equation of straight line L?

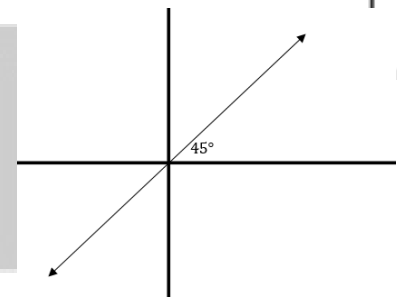
- a)  $y = x$       b)  $y + x = 2$   
c)  $y = 2$       d)  $y - x = 2$



28) In the opposite figure

The equation of straight line (L) is  $\dots\dots\dots$

- a)  $x = 1$       b)  $y = x$   
c)  $y = -x$       d)  $y = 1$



29) If  $\frac{-2}{3}, \frac{k}{6}$  slopes of two straight lines which are perpendicular then  $k = \dots\dots\dots$

- a)  $9$       b)  $4$       c)  $-9$       d)  $-4$

30) If  $\overleftrightarrow{CD}$  is parallel to y-axis where  $C(m, 4)$ ,  $D(-5, 7)$ , then  $m = \dots\dots\dots$

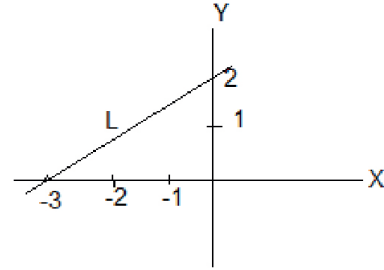
- a)  $5$       b)  $-5$       c)  $-7$       d)  $7$

31) If the point of origin is the midpoint of AB, where  $A(5, -2)$ , then the point B is  $\dots\dots\dots$

- a)  $(-5, -2)$       b)  $(5, 2)$       c)  $(-5, 2)$       d)  $(0, 0)$

32) In the opposite figure

The slope of  $L$  equals .....



a)  $\frac{2}{3}$

b)  $\frac{3}{2}$

c)  $\frac{-2}{3}$

d)  $\frac{-3}{2}$

33) If  $C(-3, y)$  is midpoint of  $\overline{AB}$  where  $A(x, -6)$  and  $B(9, -12)$ , then  $y - x =$  .....

a) 7

b) 9

c) 6

d) -18

34) If  $\overline{AB}$  is a diameter of a circle,  $A(3, -5)$ ,  $B(5, 1)$ , then the center of circle is.....

a)  $(-8, -2)$

b)  $(4, 2)$

c)  $(2, 2)$

d)  $(4, -2)$

35) The straight line whose equation is  $y = 3x + 4$  intercepts from the positive direction of y-axis apart of length ..... l.u

a) 3

b) 4

c) 5

d) 7

36) The slope of straight line whose makes with the positive direction of x-axis an angle whose measure is  $x^\circ$  equals .....

a)  $\sin x$

b)  $\cos x$

c)  $\frac{\sin x}{\cos x}$

d)  $\sin x + \cos x$

37) If  $\sin \theta = 0.6$ , then  $m(\angle \theta) =$  .....

a)  $51^\circ 33' 35''$

b)  $36^\circ 52' 12''$

c)  $47^\circ 15' 48''$

d)  $45^\circ 15' 6''$

38) ABC is right-angled triangle at B where  $A(1, 4)$ ,  $B(-1, -2)$ , then the slope of  $\overrightarrow{BC}$  equals .....

a)  $\frac{-1}{3}$

b) 3

c)  $\frac{1}{3}$

d) -3

39) If ABCD is a rectangle  $A(-4, -1)$ ,  $C(4, 5)$ , then the length of  $\overline{BD} =$  .....l.u

a) 10

b) 6

c) 5

d) 4

40) The equation of straight line is :  $\frac{x}{2} - \frac{y}{3} = 6$ , then the intercepted part of x-axis part of length ..... L.u

a) 3

b) 12

c) 6

d) 18

41) If  $\sin 30^\circ = \cos \theta$  where  $\theta$  is an acute angle, then  $\theta =$  ..... $^\circ$

a)  $15^\circ$

b)  $30^\circ$

c)  $60^\circ$

d)  $90^\circ$



42) If  $x + y = 5$ ,  $kx + 2y = 0$  are perpendicular, then  $k = \dots\dots\dots$

a) 1

b) -1

c) 2

d) -2

43) if the triangle ABC is right angled at angle C

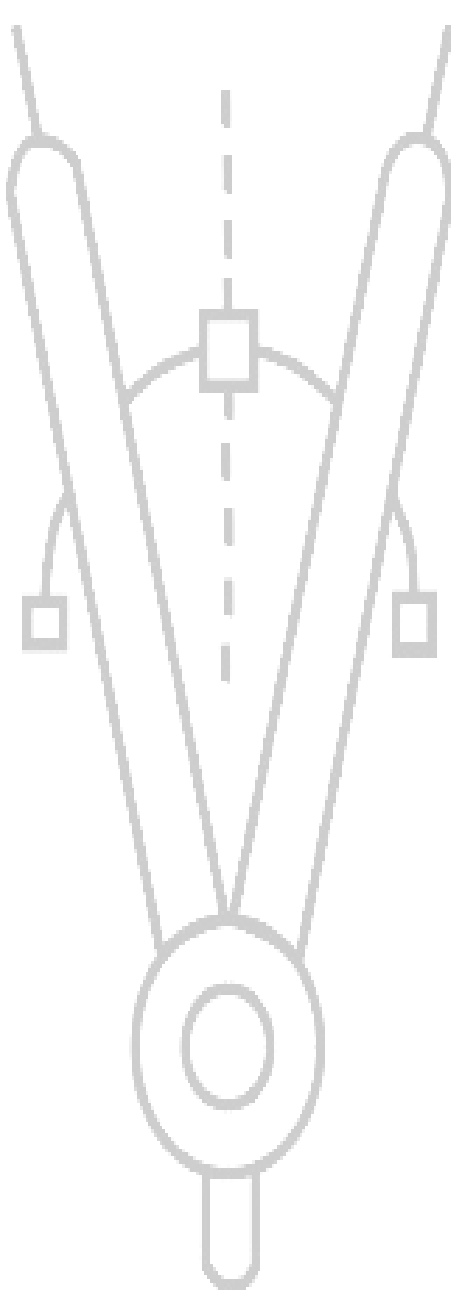
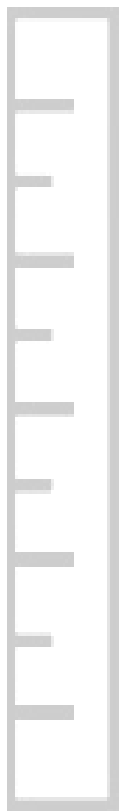
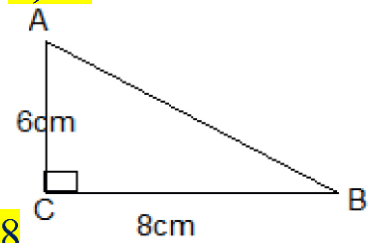
$\cos A \cos B = \dots\dots\dots$

a) 0

b) 1

c) 6

d) 0.48



HOUSE  
OF  
ATH



# Final Revision

## Middle (3)

### Algebra

**Choose the correct answer:**

- 1) Point  $(-3, 4)$  lie in the ..... quadrant  
 a) First      **b) Second**      c) Third      d) Fourth
- 2) If  $n(x) = 2$ ,  $n(y^2) = 9$ , then  $n(x \times y) = \dots\dots\dots$   
**a) 6**      b) 18      c) 11      d) 7
- 3) Point  $(3, 4)$  lie in the .....quadrant  
**a) First**      b) Second      c) Third      d) Fourth
- 4)  $n(x) = 2$ ,  $n(y \times x) = 6$ , then  $n(y^2) = \dots\dots\dots$   
 a) 4      **b) 9**      c) 16      d) 12
- 5)  $x = \{3\}$ ,  $n(y) = 5$ , then  $n(x \times y) = \dots\dots\dots$   
 a) 1      **b) 5**      c) 8      d) 15
- 6)  $f(x) = 3$ , then  $f(3) + f(-3) = \dots\dots\dots$   
 a) 0      b) 1      **c) 6**      d) -6
- 7)  $n(x) = 5$ ,  $n(x \times y) = 10$ , then  $n(y) = \dots\dots\dots$   
 a) 4      b) 3      **c) 2**      d) 1
- 8)  $(x + 5, 8) = (1, 6y + x)$ , then  $y = \dots\dots\dots$   
 a) 5      b) 6      **c) 2**      d) 12
- 9) If  $x \times y = \{(1, 2), (3, 4)\}$ , then  $x \cap y = \dots\dots\dots$   
 a)  $\{1, 2\}$       b)  $\{(3, 4)\}$       **c)  $\emptyset$**       d)  $\{1, 4\}$
- 10)  $f(x) = (2a - 2)x^3 + 3x^2 + x + 2$  is a polynomial function from second degree, then  $a = \dots\dots\dots$   
 a) 0      b) 2      c) 3      **d) 1**



11) If Point  $(a - 5, 5 - a)$  lie fourth quadrant, then .....

a)  $a \geq 5$

b)  $a \leq 5$

c)  $a > 5$

d)  $a < 5$

12)  $a < 5$ , then Point  $(2, a-5)$  lie in the .....quadrant

a) First

b) Second

c) Third

d) Fourth

13) The following functions are polynomial functions except the function  $(f)$  where  $f(x) = \dots\dots\dots$

a)  $x + 3$

b)  $\sqrt{2x} + 1$

c)  $x \left( x + \frac{1}{x} \right)$

d)  $x^2(x + 4)$

14)  $(a - 7, 26) = (-3, b^3 - 1)$ , then  $\sqrt{a^2 + b^2} = \dots\dots\dots$

a) 5

b) -5

c)  $\pm 5$

d)  $\pm 7$

15) If  $f(x + 3) = x - 3$ , then  $f(7) = \dots\dots\dots$

a) 4

b) 1

c) 7

d) 10

16)  $f(x) = 3$ , then  $f(2) - f(7) = \dots\dots\dots$

a) 5

b) -5

c) 0

d) -4

17) If Point  $(b - 4, 2 - b)$  lie third quadrant, then  $b = \dots\dots\dots$

a) 2

b) 3

c) 4

d) 6

18)  $x = \{1, 2\}$ ,  $y = \{3, 4\}$ , then  $(3, 4) \in \dots\dots\dots$

a)  $x \times y$

b)  $y \times x$

c)  $x^2$

d)  $y^2$

19) If point  $(2, y)$  lie x-axis, then  $y + 4 = \dots\dots\dots$

a) 5

b) 4

c) 2

d) 3

20) If  $(3, 5) \in \{3, b\} \times \{x, 8\}$  then  $x = \dots\dots\dots$

a) 8

b) 6

c) 5

d) 3

21) If  $(x - 3, 2y) = (2, 10)$ , then  $(x, y) = \dots\dots\dots$

a)  $(5, 2)$

b)  $(2, 5)$

c)  $(5, 5)$

d)  $(2, 2)$



22) If  $f(3x) = 6$ , then  $f(-2) = \dots\dots\dots$

a) -12

b) -3

c) 6

d) -18

23) If  $x = \{1\}$ ,  $y = \{3\}$ , then  $n(x \times y) = \dots\dots\dots$

a)  $\{(1,3)\}$

b)  $\{(3,1)\}$

c) 3

d) 1

24) If  $f(x) = 4x + a$  and  $f(2) = 15$ , then  $a = \dots\dots\dots$

a) 2

b) 4

c) 7

d) 15

25) If  $f(x) = 5$ , then  $f(5) + f(-5) = \dots\dots\dots$

a) 0

b) 5

c) -5

d) 10

26) If point  $(a - 3, 5)$  lie on y-axis, then  $a = \dots\dots\dots$

a) 5

b) 3

c) 2

d) 0

27) If  $x \in R$ , then point  $(x, \sqrt{x})$  lie in .....quadrant .

a) First

b) Second

c) Third

d) Fourth

28) If  $x = \{1, 2, 3\}$  and  $R$  is function on  $x$  where  $R = \{(a, 3), (b, 1), (1, 5)\}$ , then the numerical value of  $a + b = \dots\dots\dots$

a) 4

b) 6

c) 8

d) Other

29) The function  $f: f(x) = (x - 2)^2 - x^2$  is of the ..... degree.

a) First

b) Second

c) Third

d) Fourth

30) The positive square root of mean of square of deviation of values from its arithmetic mean is called .....

a) Median

b) Arithmetic mean

c) Standard deviation

d) Mode

31) If  $3a = 4b$ , then  $a:b = \dots\dots\dots$

a) 3 : 4

b) 4 : 3

c) 3 : 7

d) 4 : 7

32) The range of set of values: 7, 3, 6, 9 and 5 is .....

a) 3

b) 4

c) 6

d) 12

33) If  $y \propto x$  and  $y = 2$  when  $x = 8$  then  $y = 3$  when  $x = \dots\dots\dots$

a) 4

b) 6

c) 8

d) Other



34) ..... is one of measure of desperation.

a) Median

b) Arithmetic mean

c) Standard deviation

d) Mode

35) The third proportion of the two numbers 3 and 6 is .....

a)  $\frac{1}{2}$

b) 9

c) 2

d) 12

36)  $xy = 7$ , then  $y \propto$  .....

a)  $\frac{1}{x}$

b)  $x - 7$

c)  $x$

d)  $x + 7$

37) The simplest dispersion measure is .....

a) Arithmetic mean

b) The median

c) The range

d) Mode

38) The relation which represent an inverse variation between the two variables  $y$  and  $x$  is .....

a)  $xy = 5$

b)  $y = x + 3$

c)  $\frac{x}{5} = \frac{y}{2}$

d)  $y = 2x$

39) The mean of set of values 8,9,7,6 and 5 equals .....

a) 25

b) 7

c) 35

d) 5

40) The relation represent the direct variation between  $x$  and  $y$  is .....

a)  $x + y = 5$

b)  $y = x + 3$

c)  $\frac{x}{3} = \frac{4}{y}$

d)  $\frac{x}{5} = \frac{y}{2}$

41) If  $\sum(x - \bar{x})^2 = 36$  to set of 9 values, then  $\sigma =$  .....

a) 2

b) 4

c) 18

d) 27

42) Mean of  $2x, 3, 4, 5$  equals 4, then  $x =$  .....

a) 1

b) 2

c) 3

d) 4

43) If  $y = mx$  as  $m$  is constant  $\neq 0$ , which of following is false

a)  $y \propto x$

b)  $x \propto y$

c)  $X = \frac{1}{m} y$

d)  $x \propto \frac{1}{y}$

44) If  $a, b, c, d$  is proportional, then  $\frac{ad-bc}{a^2+b^2+c^2} =$  .....

a) 0

b) 1

c) 2

d) 3



45) The expectation of the match of Ismaili club is called .....

**a) Probability**

b) Equation

c) Inequality

d) Relation

46) The third proportional of quantities, 2 , 3 , 6 is .....

a) 1

b) 4

**c) 9**

d) 12

47) If set of values are equal, then the dispersion of these values is .....

a)  $> 0$

b)  $< 0$

c)  $= 1$

**d)  $= 0$**

48) The difference between the greatest value and the smallest value in a set of individuals called .....

a) Standard deviation

b) Mean

c) Median

**d) Range**

49) The commonest measure of dispersion and the most accurate is .....

a) Standard deviation

b) Mean

c) Median

**d) Mode**

50) If  $7, x, \frac{1}{y}$  is continued proportion, then  $x^2 y = \dots$

**a) 7**

b)  $\frac{1}{7}$

c) 14

d) 49

51) If  $a, 2, 4, b$  is contained proportional, then  $a + b = \dots$

a) 4

b) 6

c) 8

**d) Other**

52) The standard deviation of 5 , 5 , 5 , 5 equals .....

**a) zero**

b) 5

c) 6

d) 2

53) If  $\frac{y}{x} = 5$ , then  $y \propto \dots$

**a)  $x$**

b)  $\frac{1}{x}$

c)  $x - 5$

d)  $x + 5$

54) The middle proportional between  $3x^3$  and  $27x$  is .....

a)  $9x^2$

**b)  $\pm 9x^2$**

c)  $\pm 9x^4$

d)  $9x^4$

55)  $y^2 + 4x^2 = 4xy$ , then .....

**a)  $y \propto x$**

b)  $y \propto x^2$

c)  $y \propto \frac{1}{x}$

d)  $y \propto \frac{1}{x^2}$

56) If all values are equal, then .....

a)  $x - \bar{x} > 0$

b)  $x - \bar{x} < 0$

c)  $\bar{x} = 0$

**d)  $\sigma = 0$**

57)  $X, Y, Z$  are continued proportional m then  $x = \dots$

a)  $\pm \sqrt{yz}$

b)  $tz$

**c)  $\frac{y^2}{z}$**

d)  $\frac{y}{z}$



Prep 3

Algebra

Choose the correct answer :

- 1) The point  $(-3, 4)$  lies in ..... quadrant.  
 a) first      b) second      c) third      d) fourth
- 2) If  $X = \{5\}$ ,  $Y = \{3\}$ , then  $n(X \times Y) = \dots\dots\dots$   
 a) 15      b) 8      c) 2      d) 1
- 3) If :  $X = \{5, 6, 7\}$ , then  $n(X^2) = \dots\dots\dots$   
 a) 3      b) 6      c) 9      d) 12
- 4) If :  $n(X^2) = 9$ , then  $n(X) = \dots\dots\dots$   
 a) 3      b) 6      c) 18      d) 81
- 5) If :  $X \times Y = \{(1, 3), (1, 4)\}$ , then  $n(X) = \dots\dots\dots$   
 a) 3      b) 1      c) 4      d) 2
- 6) If :  $X = \{3, 5, 7\}$  and  $R$  is a relation on  $X$ , then the relation which represents a function is .....  
 a)  $R = \{(3, 5), (5, 3), (3, 7)\}$   
 b)  $R = \{(3, 5), (5, 7)\}$   
 c)  $R = \{(3, 5), (5, 5), (7, 5)\}$   
 d)  $R = \{(3, 3), (3, 5), (3, 7)\}$
- 7) If  $R$  is a function from set  $X$  to set  $Y$  where  $X = \{2, 5, 8\}$ ,  $Y = \{3, 5\}$  and  $R = \{(2, 3), (5, 3), (x, 3)\}$ , then  $X = \dots\dots\dots$   
 a) 2      b) 3      c) 5      d) 8



- 8) If the function  $f$  is a function from set  $X$  to set  $Y$  then the domain of the function is .....
- a)  $x$                       b)  $y$                       c)  $x \times y$                       d)  $y \times x$
- 9) If  $R$  is a function where  $R = \{(4, 3), (5, 6), (9, 3)\}$ , then the range of the function  $R$  is .....
- a)  $\{3, 4, 5, 6, 9\}$                       b)  $\{4, 5, 9\}$   
c)  $\{3, 6, 9\}$                       d)  $\{3, 6\}$
- 10) If the point  $(x, 7)$  lies on  $y$ -axis, then  $5x + 1 = \dots\dots\dots$
- a) zero                      b) 1                      c) 5                      d) 6
- 11) If:  $f(X) = X^2 + 7$ , then  $f(3) = \dots\dots\dots$
- a) 10                      b) 7                      c) 9                      d) 16
- 12) If:  $f(X) = X^3$ , then  $f(2) + f(-2) = \dots\dots\dots$
- a) 16                      b) zero                      c) -7                      d) 4
- 13) If:  $f(x) = 7x - \frac{1}{2}$ , then  $f(\frac{1}{2}) = \dots\dots\dots$
- a) 7                      b)  $\frac{1}{2}$                       c)  $\frac{7}{2}$                       d) 3
- 14) The function  $f$ , where  $f(x) = 5x$  is represented graphically by a straight line passes through the point .....
- a) (5, 5)                      b) (0, 0)                      c) (0, 5)                      d) (5, 0)
- 15) If:  $f(x) = 4x + b$ ,  $f(3) = 15$ , then  $b = \dots\dots\dots$
- a) 156                      b) 3                      c) 4                      d) -3
- 16) If:  $(m, 13)$  satisfies the function  $f$  where  $f(x) = 3x + 4$ , then  $m = \dots\dots\dots$
- a) 6                      b) -6                      c) 3                      d) -3



17) If :  $(2, b)$  satisfies the function  $f$  where  $f(x) = 3x - 6$ , then

$b = \dots\dots\dots$

- a) zero                      b) 7                      c) 9                      d) 2

18) If :  $f(x) = 5x + 4$  is represented graphically by a straight line passes through the point  $(3, b)$ , then  $b = \dots\dots\dots$

- a) 5                      b) 4                      c) 3                      d) 19

19) If :  $a, b, 2$  and  $3$  are proportional, then  $\frac{a}{b} = \dots\dots\dots$

- a)  $\frac{2}{3}$                       b)  $\frac{3}{2}$                       c)  $\frac{3}{4}$                       d)  $\frac{4}{3}$

20) If :  $\frac{x}{y} = \frac{z}{l}$  which of the following is true?

- a)  $\frac{x}{l} = \frac{y}{z}$                       b)  $\frac{x}{z} = \frac{l}{y}$                       c)  $\frac{x}{y} = \frac{l}{z}$                       d)  $\frac{x}{z} = \frac{y}{l}$

21) The second proportion of the quantities  $12ab^2, \dots\dots\dots, 21ab, 14b^2$  is  $\dots\dots\dots$

- a)  $8ab^2$                       b)  $8b^3$                       c)  $24ab$                       d)  $24b^2$

22) The third proportion of the two numbers  $3$  and  $6$  is  $\dots\dots\dots$

- a)  $\frac{1}{2}$                       b) 2                      c) 9                      d) 12

23) If :  $2, 6, x + 15$  are proportional, then  $X = \dots\dots\dots$

- a) 1                      b) 2                      c) 3                      d) 4

24) If :  $\frac{9}{a^2} = \frac{4}{b^2}$  (where  $a \neq 0$  and  $b \neq 0$ ) then,  $\frac{a}{b} = \dots\dots\dots$

- a)  $\frac{2}{3}$                       b)  $\pm \frac{3}{2}$                       c)  $\pm \frac{2}{3}$                       d)  $\pm \frac{4}{9}$

25) If  $\frac{a}{2} = \frac{b}{3}$ , then  $\frac{b-a}{b+a}$  equals  $\dots\dots\dots$

- a)  $\frac{1}{5}$                       b)  $\frac{1}{3}$                       c)  $\frac{2}{5}$                       d)  $\frac{3}{5}$

26) If :  $\frac{x}{2} = \frac{y}{3} = \frac{4x-2y}{z}$ , then  $z = \dots\dots\dots$

- a) -2                      b)  $-\frac{1}{2}$                       c)  $\frac{1}{2}$                       d) 2

27) If  $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = m$  (where  $m \in \mathbb{R}^*$ ), then  $\frac{ace}{bdf} = \dots\dots\dots$

- a)  $m$                       b)  $3m$                       c)  $m^3$                       d)  $3m^3$

28) The number which if we added to each of the numbers 1, 3, 7, 15 respectively to be in continued proportion is  $\dots\dots\dots$

- a) 1                      b) 2                      c) 3                      d) 4

29) The relation which represents direct variation between the two variables  $x$  and  $y$  is  $\dots\dots\dots$

- a)  $xy = 7$                       b)  $y = x + 2$                       c)  $\frac{x}{3} = \frac{4}{y}$                       d)  $\frac{x-y}{5} = 2$

30) If  $y \propto x$  and  $x=1$  at  $y=4$ , then the constant of the variation =  $\dots\dots\dots$

- a) 1                      b) -4                      c)  $\frac{1}{4}$                       d)  $-\frac{1}{4}$

31) If  $y - x = \frac{1}{x} - \frac{1}{y}$  where  $x \neq y \neq 0$ , then  $\dots\dots\dots$

- a)  $y \propto x + 1$                       b)  $y \propto x$                       c)  $y \propto \frac{1}{x}$                       d)  $y \propto \frac{1}{x^2}$

32) The positive square root of the average of squares of deviations of the values from its arithmetic mean is called  $\dots\dots\dots$

- a) the range.                      b) the arithmetic mean.  
c) the median.                      d) the standard deviation.



33) The range of the set of the values : 7 , 3, 6, 9 and 5 equals

.....

- a) 3                      b) 4                      c) 6                      d) 12

34) The arithmetic mean of the set of the values : 7 , 3 , 6 , 9 , and 5 equals .....

- a) 3                      b) 4                      c) 6                      d) 12

35) If  $\sum (X - \bar{X})^2 = 36$  of a set of values and the number of these values = 9 , then  $\delta =$  .....

- a) 2                      b) 4                      c) 3                      d) 27

36) If  $X \times Y = \{(2, 3), (2, 5)\}$  , then  $n(X) =$  .....

- a) 1                      b) 2                      c) 3                      d) 5

37) If  $b < 3$  , then the point  $(6, b-3)$  lies in the ..... quadrant

- a) first                      b) second                      c) third                      d) fourth

38) If the point  $(x, 3)$  lies on y-axis, then  $7x - 1 =$  .....

- a) 20                      b) -1                      c) 6                      d) 8

39) If  $f(x) = 4x + b$  ,  $\frac{1}{3} f(3) = 5$ , then  $b =$  .....

- a) -57                      b) 3                      c) 4                      d) -3

40) The function  $f$  where  $f(x) = 3x$  is represented graphically by a straight line which passes through the point .....

- a) (3, 3)                      b) (3, 0)                      c) (0, 0)                      d) (0, 3)

41) The maximum value of the function  $f : f(x) = -2x^2 + 4x + 3$  is.....

- a) 5                      b) 1                      c) 3                      d) -1

42) If the point  $(a, 3 - a)$  is located on the x-axis, then  $a = \dots\dots\dots$

- a) zero                      b) 3                      c) -3                      d) 5

43) If  $f(x) = X^3$ , then  $f(2) + f(-2) = \dots\dots\dots$

- a) 16                      b) zero                      c) -16                      d) 4

44) If  $X \times Y = \{2, 3\}$ , then  $X^2 = \dots\dots\dots$

- a)  $\{(4, 9)\}$                       b)  $\{(4, 3)\}$   
c)  $\{(2, 2)\}$                       d)  $\{(2, 9)\}$

45) If  $f: f(x) = 5$  is represented by a straight line parallel to the x-axis, then it passes through the point  $\dots\dots\dots$

- a)  $(0, 5)$                       b)  $(5, 0)$   
c)  $(5, -5)$                       d)  $(0, 0)$

46) If  $R$  is a function from  $X$  to  $Y$  where  $X = \{3, 5, 7\}$ ,  $Y = \{4, 9\}$  and  $R = \{(3, 4), (b, 9), (5, 9)\}$ , then  $b = \dots\dots\dots$

- a) 3                      b) 5                      c) 7                      d) 9

47) The function  $f: f(x) = (X - 5)^3$  is a polynomial of the  $\dots\dots\dots$  degree.

- a) first                      b) second                      c) third                      d) fourth

48) If  $4X^2 = 9Y^2$ , then  $\frac{x}{y} = \dots\dots\dots$

- a)  $\frac{9}{4}$                       b)  $\frac{3}{2}$                       c)  $\pm \frac{3}{2}$                       d)  $\pm \frac{2}{3}$

49) If  $X^2y = 5$ , then  $\dots\dots\dots$

- a)  $y \propto x$                       b)  $y \propto x^2$                       c)  $y \propto \frac{1}{x}$                       d)  $y \propto \frac{1}{x^2}$

50) If  $\frac{a}{2} = \frac{b}{3}$ , then  $\frac{b-a}{b+a} = \dots\dots\dots$

- a)  $\frac{1}{5}$                       b)  $\frac{1}{3}$                       c)  $\frac{2}{5}$                       d)  $\frac{3}{5}$



51) If  $\frac{x}{2} = \frac{y}{3} = \frac{4x-2y}{z}$ , then  $z = \dots\dots\dots$

- a) -2                      b)  $-\frac{1}{2}$                       c)  $\frac{1}{2}$                       d) 2

52) The second proportional for the quantities  $12 a b^2$ ,  $\dots\dots\dots$ ,  $21 a b$ ,  $14 b^2$  is  $\dots\dots\dots$

- a)  $8 a b^2$                       b)  $8 b^3$                       c)  $24 a b$                       d)  $24 b^4$

53) If  $y \propto x$  and  $x = 1$  when  $y = 4$ , then the constant proportional equals  $\dots\dots\dots$

- a) 1                      b) -4                      c) 4                      d)  $-\frac{1}{4}$

54) If  $a$ ,  $b$ , 2 and 3 are proportional quantities, then  $\frac{b}{a} = \dots\dots\dots$

- a)  $\frac{3}{2}$                       b)  $\frac{2}{3}$                       c) 3                      d) 2

55) If 2, 6 and  $x + 15$  are proportional, then  $X = \dots\dots\dots$

- a) 1                      b) 2                      c) 3                      d) 4

56) If  $x y = 12$ , then  $y$  varies directly with  $\dots\dots\dots$

- a)  $\frac{1}{x}$                       b)  $x - 12$                       c)  $x$                       d)  $x + 12$

57) If  $y$  varies inversely with  $x$  and  $x = \sqrt{3}$  when  $y = \frac{2}{\sqrt{3}}$ , then the constant of proportion equals  $\dots\dots\dots$

- a)  $\frac{1}{2}$                       b)  $\frac{2}{3}$                       c) 2                      d) 6

58) If  $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = m$  (where  $m \in \mathbb{R}^*$ ), then  $\frac{ace}{bdf} = \dots\dots\dots$

- a)  $m$                       b)  $3m$                       c)  $m^3$                       d)  $3 m^3$

59) If  $\frac{a}{3} = \frac{b}{5}$ , then  $5 a - 3 b + 7 = \dots\dots\dots$

- a) 3                      b) 9                      c) 7                      d)  $5 ab$

60) The difference between the greatest value and the smallest value of a set of individuals is called .....

- a) the range.
- b) the arithmetic mean.
- c) the median.
- d) the standard deviation.

61) Selecting a sample of layers of a statistical society is called ..... sample.

- a) random
- b) class (layer)
- c) deliberate
- d) bunch

62) The range of the set of values : 5, 14, 4, 37, 15, 16 and 7 is.....

- a) 30
- b) 33
- c) 32
- d) 22

63) The standard deviation of the values : 5, 5, 5, 5 equals .....

- a) zero
- b) 5
- c) 6
- d) 2



Prep 3

Geometry

Answer the following questions :

Choose the correct answer :

1)  $4 \cos 30^\circ \tan 60^\circ = \dots\dots\dots$

- a) 3                                      b)  $2\sqrt{3}$                                       c) 6                                      d) 12

2) If  $\cos 2x = \frac{1}{2}$  where X is an acute angle, then  $m(\angle X) = \dots\dots\dots$

- a)  $15^\circ$                                       b)  $30^\circ$                                       c)  $45^\circ$                                       d)  $60^\circ$

3) If  $\tan \frac{3x}{2} = 1$  where X is an acute angle, then  $m(\angle X) = \dots\dots\dots$

- a)  $10^\circ$                                       b)  $30^\circ$                                       c)  $45^\circ$                                       d)  $60^\circ$

4)  $2 \tan 45 - \frac{1}{\cos 60} = \dots\dots\dots$

- a) zero                                      b)  $\frac{1}{2}$                                       c)  $\frac{\sqrt{3}}{2}$                                       d) 1

5) If  $\cos \frac{x}{2} = \frac{\sqrt{3}}{2}$  where X is an acute angle, then  $\sin X = \dots\dots\dots$

- a)  $\frac{1}{2}$                                       b)  $\frac{1}{\sqrt{3}}$                                       c)  $\frac{2}{\sqrt{3}}$                                       d)  $\frac{\sqrt{3}}{2}$

6) In  $\triangle ABC$  :

If  $m(\angle A) = 85^\circ$ ,  $\sin B = \cos B$ , then  $m(\angle C) = \dots\dots\dots$

- a)  $30^\circ$                                       b)  $45^\circ$                                       c)  $50^\circ$                                       d)  $60^\circ$

7) If  $\tan X = \frac{1}{\sqrt{3}}$  where X is an acute angle, then :  $\tan$

$2X = \dots\dots\dots$

- a)  $\frac{2}{\sqrt{3}}$                                       b)  $2\sqrt{3}$                                       c)  $\sqrt{3}$                                       d) 3

8) If  $X$  is the measure of an acute angle and  $\sin X = \frac{1}{2}$ , then

$\sin 2X = \dots\dots\dots$

- a) 1                      b)  $\frac{1}{4}$                       c)  $\frac{\sqrt{3}}{2}$                       d)  $\frac{1}{2}$

9) If  $2 \sin X = \tan 60^\circ$  where  $X$  is an acute angle, then :  $m(\angle X)$

$= \dots\dots\dots$

- a)  $30^\circ$                       b)  $45^\circ$                       c)  $60^\circ$                       d)  $40^\circ$

10) If  $\tan 2X = \frac{\sqrt{3}}{3}$  where  $2X$  is an acute angle, then :  $m(\angle X)$

$= \dots\dots\dots$

- a)  $15^\circ$                       b)  $30^\circ$                       c)  $60^\circ$                       d)  $45^\circ$

11) If  $\sin 2X = \frac{\sqrt{3}}{2}$ , then :  $X = \dots\dots\dots$  (where  $2X$  is an acute angle).

- a)  $20^\circ$                       b)  $30^\circ$                       c)  $45^\circ$                       d)  $60^\circ$

12) If  $\cos \frac{x}{2} = \frac{1}{2}$  where  $\frac{x}{2}$  is an acute angle, then :  $m(\angle X) = \dots\dots\dots$

- a)  $30^\circ$                       b)  $45^\circ$                       c)  $60^\circ$                       d)  $120^\circ$

13) If  $\cos (X + 10^\circ) = \frac{1}{2}$  where  $(X + 10^\circ)$  is an acute angle, then

$X = \dots\dots\dots$

- a)  $30^\circ$                       b)  $40^\circ$                       c)  $50^\circ$                       d)  $70^\circ$

14) If  $\tan (X - 5^\circ) = \frac{1}{\sqrt{3}}$  where  $(X - 5^\circ)$  is an acute angle, then :

$X = \dots\dots\dots$

- a)  $35^\circ$                       b)  $65^\circ$                       c)  $60^\circ$                       d)  $30^\circ$



15) If  $\sin (X + 5^\circ) = \frac{1}{2}$  where  $(X + 5^\circ)$  is the measure of an acute angle, then :  $\tan (X + 20^\circ) = \dots\dots\dots$

- a)  $\frac{\sqrt{2}}{2}$                       b)  $\frac{1}{2}$                       c)  $\frac{\sqrt{3}}{2}$                       d) 1

16)  $\tan 75^\circ = \dots\dots\dots$

- a)  $\frac{\cos 75^\circ}{\sin 75^\circ}$                       b)  $\frac{\sin 75^\circ}{\cos 75^\circ}$   
c)  $3 \tan 25^\circ$                       d)  $3 \sin 25^\circ \cos 25^\circ$

17) In the opposite figure :

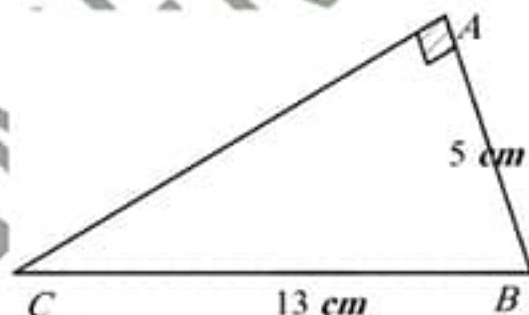
ABC is a triangle in which :

$m(\angle A) = 90^\circ$ ,  $AB = 5 \text{ cm}$ .

And  $BC = 13 \text{ cm}$ .

, then :  $\tan B = \dots\dots\dots$

- a)  $\frac{5}{13}$                       b) 2.4                      c)  $\frac{13}{5}$                       d)  $\frac{25}{13}$



18) For any acute angle A ,  $\tan A = \dots\dots\dots$

- a)  $\frac{\cos A}{\sin A}$                       b)  $\sin A \cos A$   
c)  $\frac{\sin A}{\cos A}$                       d)  $\sin A + \cos A$

19) For any two acute angles A and B if  $\sin A = \cos B$  , then

$m(\angle A) + m(\angle B) = \dots\dots\dots$

- a)  $30^\circ$                       b)  $60^\circ$                       c)  $90^\circ$                       d)  $180^\circ$

20) If  $m(\angle A) = 75^\circ$  ,  $\sin B = \cos A$  where B is an acute angle,

then :  $m(\angle B) = \dots\dots\dots$

- a)  $45^\circ$                       b)  $75^\circ$                       c)  $15^\circ$                       d)  $105^\circ$

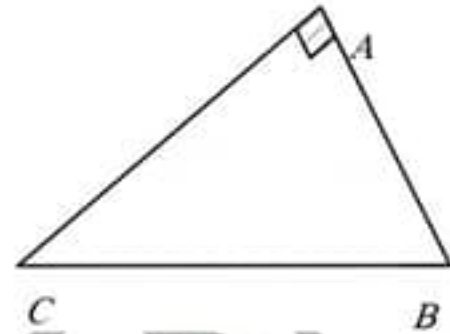
21) In  $\triangle ABC$  : if  $m(\angle A) = 60^\circ$  ,  $\sin C = \cos C$  , then :  $m(\angle B) = \dots\dots\dots$

- a)  $60^\circ$                       b)  $30^\circ$                       c)  $45^\circ$                       d)  $75^\circ$

22) In the opposite figure :

Which of the following has  
The value of  $\sin C$ ?

- a)  $\sin B$                       b)  $\cos B$   
c)  $\tan C$                       d)  $\cos C$



23) For any acute angle A ,  $\tan A = \dots\dots\dots$

- a)  $\frac{\cos A}{\sin A}$                       b)  $\sin A \cos A$   
c)  $\frac{\sin A}{\cos A}$                       d)  $\sin A + \cos A$

24) If  $\cos X = \frac{\sqrt{2}}{2}$  where X is an acute angle , then  $\sin 2X = \dots\dots\dots$

- a)  $\frac{1}{\sqrt{2}}$                       b)  $-\frac{\sqrt{2}}{2}$                       c) 1                      d)  $\frac{2}{\sqrt{2}}$

25) ABC is a right-angled triangle at B where  $3AC = 5 BC$  , then  
 $\tan A = \dots\dots\dots$

- a)  $\frac{3}{5}$                       b)  $\frac{5}{3}$                       c)  $\frac{3}{4}$                       d)  $\frac{4}{3}$

26) If  $\cos (X + 15^\circ) = \frac{1}{2}$  , then  $\sin (75^\circ - X) = \dots\dots\dots$

- a)  $\frac{1}{2}$                       b)  $\frac{\sqrt{3}}{2}$                       c)  $\frac{1}{\sqrt{2}}$                       d) 1

27) If XYZ is an isosceles triangle and right at Z , then  $\tan X = \dots\dots\dots$

- a)  $\frac{1}{\sqrt{3}}$                       b)  $\sqrt{3}$                       c) 1                      d)  $\frac{1}{3}$



28) If  $\tan (X + 15) = 1$  where  $X$  is an acute angle , then  $X = \dots\dots$

- a)  $60^\circ$                       b)  $45^\circ$                       c)  $30^\circ$                       d)  $15^\circ$

29) If  $\sin 30^\circ = \cos E$  where  $E$  is an acute angle, then

$m(\angle E) = \dots\dots\dots$

- a)  $15^\circ$                       b)  $30^\circ$                       c)  $60^\circ$                       d)  $90^\circ$

30) If  $X$  is an acute angle,  $2\sin X - 1 = 0$  , then  $m(\angle X) = \dots\dots\dots$

- a)  $60^\circ$                       b)  $90^\circ$                       c)  $45^\circ$                       d)  $30^\circ$

31) If  $A$  and  $B$  are two complementary angles where  $A : B = 1:2$ ,  
then  $\sin A + \cos B = \dots\dots\dots$

- a)  $\frac{1}{2}$                       b)  $\frac{1}{4}$                       c)  $\frac{\sqrt{3}}{2}$                       d) 1

32) If  $m(\angle A) = 70^\circ$ ,  $\sin B = \cos B$  in  $\triangle ABC$  , then  $m(\angle C)$   
 $= \dots\dots\dots$

- a)  $50^\circ$                       b)  $45^\circ$                       c)  $70^\circ$                       d)  $65^\circ$

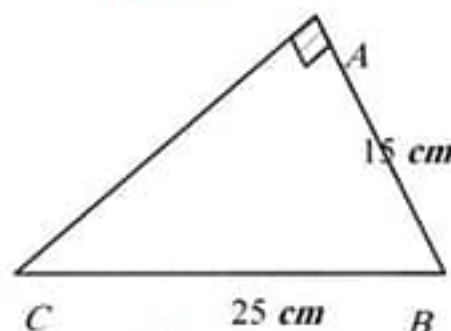
33) In the opposite figure :

$ABC$  is a triangle in which :

$m(\angle A) = 90^\circ$  ,  $AB = 15 \text{ cm}$ .

$BC = 25 \text{ cm}$  , then  $\tan B = \dots\dots\dots$

- a)  $\frac{3}{5}$                       b)  $\frac{4}{5}$                       c)  $\frac{4}{3}$                       d)  $\frac{3}{4}$



34) The distance between the point  $(4, -3)$  and the  $x$ -axis  
equals.....

- a) -3                      b) 3                      c) 4                      d) 5

- 35) A circle of centre at the origin point and its radius length is 2 unit length which of the following point belongs to the circle?
- a) (1 , 2)      b) (-2 , 1)      c) ( $\sqrt{3}$ , 1)      d) ( $\sqrt{2}$ , 1)
- 36) If : (4 , -3) is the midpoint of  $\overline{AB}$  where A (3 , -4) , then the coordinates of B is .....
- a) (5 , -2)      b) (2 , 5)      c) (5 , 2)      d) (3.5 , -3.5)
- 37) The straight line whose equation is  $2x - 3y - 6 = 0$  intercepts from the y-axis a part of length .....
- a) -6      b) -2      c)  $\frac{2}{3}$       d) 2
- 38) If the two straight lines :  $3x - 4y - 3 = 0$  and  $kx + 3y - 8 = 0$  are perpendicular, then  $k = \dots\dots\dots$
- a) -4      b) -3      c) 3      d) 4
- 39) If the two straight lines :  $x + y = 5$  and  $kx + 2y = 0$  are parallel, then  $k = \dots\dots\dots$
- a) -2      b) -1      c) 1      d) 2
- 40) The area of the triangle bounded by the straight line :  $3x - 4y = 12$  ,  $x = 0$  and  $y = 0$  in square unit equal .....
- a) 6      b) 7      c) 12      d) 15
- 41)  $\overline{AB}$  is a straight line passing through the two points (2 , 5) and (5 , 2) which of the following points  $\in \overline{AB}$
- a) (1 , 6)      b) (2 , 3)      c) (0 , 0)      d) (3 , -4)



- 42) The points  $(0, 0)$ ,  $(3, 0)$  and  $(0, 4)$
- a) from an obtuse-angled triangle.
  - b) from an acute-angled triangle.
  - c) from a right-angled triangle.
  - d) are collinear.
- 43) If:  $A(0, 0)$ ,  $B(5, 7)$  and  $C(5, h)$  are the vertices of a right-angled triangle at  $C$ , then  $h = \dots\dots\dots$
- a) zero
  - b) 5
  - c) 7
  - d) -5
- 44) If  $A(X_1, Y_1)$ ,  $B(X_2, Y_2)$ , then  $AB = \dots\dots\dots$
- a)  $X_1X_2 + Y_1Y_2$
  - b)  $\sqrt{X_1X_2 + Y_1Y_2}$
  - c)  $(X_2 - X_1, Y_2 - Y_1)$
  - d)  $\sqrt{(X_2 - X_1)^2 + (Y_2 - Y_1)^2}$
- 45) The distance between the two points  $(2, 2)$ ,  $(-1, 6) = \dots\dots\dots$  length units.
- a) 2
  - b) 5
  - c) 10
  - d) 25
- 46) If  $A(0, 0)$ ,  $B(2, 3)$  are two points in a Cartesian coordinates plane, then  $AB = \dots\dots\dots$
- a)  $\sqrt{5}$
  - b)  $\sqrt{7}$
  - c)  $\sqrt{11}$
  - d)  $\sqrt{13}$
- 47) In the Cartesian coordinates plane, the point that is at a distance 2 length unit from the origin may be  $\dots\dots\dots$
- a)  $(1, 2)$
  - b)  $(2, 1)$
  - c)  $(0, 2)$
  - d)  $(-3, 5)$
- 48) The distance between the point  $(3, -5)$  and x-axis is  $\dots\dots\dots$  length units.
- a) 3
  - b) -5
  - c) 5
  - d)  $\sqrt{34}$

49) The distance between the point (2 , -3) and y-axis is ..... length units.

- a) 2                      b) -3                      c)  $1\sqrt{13}$                       d)  $\sqrt{5}$

50) A circle its centre is the origin and its radius length is 2 length units, which of the following points belongs to the circle?

- a) (1 , 2)                      b) (-2 , 1)                      c) ( $\sqrt{3}$  , 1)                      d) ( $\sqrt{2}$  , 1)

51) If A (1 , 3) and B (3 , -5) , then the midpoint of  $\overline{AB}$  is .....

- a) (2 , 1)                      b) (2 , 4)                      c) (2 , 1)                      d) (-2 , 1)

52) If A (7 , -4) and B (-1 , 0) , then the coordinates of the midpoint of  $\overline{AB}$  is .....

- a) (-3 , 2)                      b) (3 , 2)                      c) (3 , -2)                      d) (-3 , -2)

53) If C (2 , 1) is the midpoint of  $\overline{AB}$  where B (3 , 0) , then A is.....

- a) (1 , 2)                      b) (2 , 1)                      c) (5 , 1)                      d) (1 , 5)

54) If the point (3 , -1) is the midpoint of the line segment whose terminals are (X , 2) and (10 , y) , then  $X + Y =$  .....

- a) 12                      b) 8                      c) 2                      d) -2

55) If M (1 , 2) is the intersection point of the two diagonals in the parallelogram ABCD where A (2 , 5) , then C is .....

- a) (0 , 2)                      b) (0 , -1)                      c) (-4 , 1)                      d) (-1 , 0)

56) If  $(\frac{1}{2}, \frac{5}{2})$  is the midpoint of  $\overline{AB}$  where A (1 , -1) and B (x , 6) , then X = .....

- a) 0                      b) 1                      c) 2                      d)  $\frac{1}{2}$



57) If the slope of a straight line more than zero, then the type of the positive angle which it makes with the positive direction of X-axis is .....

- a) zero                      b) acute                      c) right                      d) obtuse

58) If  $m_1$  and  $m_2$  are two slope of two perpendicular straight lines, then .....

- a)  $m_1 = m_2$                       b)  $m_1 = -m_2$   
c)  $m_1 m_2 = -1$                       d)  $m_1 m_2 = 1$

59) If  $m_1$  and  $m_2$  are two slopes of two parallel straight lines, then.....

- a)  $m_1 - m_2 = 0$                       b)  $m_1 + m_2 = 0$   
c)  $m_1 m_2 = 0$                       d)  $m_1 - m_2 \neq 0$

60) If ABCD is a parallelogram, then the slope of  $\overrightarrow{AB} = \dots\dots\dots$

- a) the slope of  $\overrightarrow{BC}$                       b) the slope of  $\overrightarrow{CD}$   
c) the slope of  $\overrightarrow{AD}$                       d) the slope of  $\overrightarrow{AC}$

61) The straight line that passes through the two points (0 , 0) and (2 , 3) is parallel to the straight line whose slope is .....

- a)  $\frac{3}{2}$                       b)  $\frac{2}{3}$                       c)  $\frac{-3}{2}$                       d)  $-\frac{2}{3}$

62) If The straight line L is perpendicular to the straight line which passes through the two points (-1 , 2) and (0 , 5) , then the slope of the straight line L = .....

- a) 3                      b) -3                      c)  $\frac{1}{3}$                       d)  $-\frac{1}{3}$

63) The two straight line whose slopes are  $\frac{3}{5}$  and  $-\frac{5}{3}$  are .....

- a) parallel                      b) perpendicular  
c) coincident                  d) not perpendicular

64) If the straight line which passes through the two points (x,5) and (2 , 3) is parallel to the straight line which passes through the two points (3 , 4) and (5 , 2) then X = .....

- a) 2                      b) -2                      c) zero                      d) 1

65) The straight line which passes through the two points (-1 , -1) and (4 , 4) makes with the positive direction of X-axis a positive angle of measure .....

- a)  $30^\circ$                       b)  $45^\circ$                       c)  $60^\circ$                       d)  $135^\circ$

66) The straight line passes through two points (a , 0) and (0 , 4) perpendicular to the one which makes an angle of measure  $45^\circ$  with the positive direction of X-axis, then a = .....

- a) 4                      b) -4                      c) 1                      d) -1

67) The slope of the straight line whose equation is :  $3y = 2x - 5$  is.....

- a) 3                      b) 2                      c) -5                      d)  $\frac{2}{3}$

68) The straight line whose equation is :  $3x - 3y + 5 = 0$  makes a positive angle with the positive direction of X-axis , its measure = .....

- a)  $30^\circ$                       b)  $45^\circ$                       c)  $60^\circ$                       d)  $90^\circ$



- 69) The straight line whose equation is :  $2x - 3y - 6 = 0$  intercepts from y-axis a part of length ..... units.  
 a) -6                      b) -2                      c)  $\frac{2}{3}$                       d) 2
- 70) The straight line whose equation :  $2x + 5y - 10 = 0$  cuts from X-axis a part of length = ..... units.  
 a)  $\frac{2}{5}$                       b) 2                      c)  $\frac{5}{2}$                       d) 5
- 71) The equation of the straight line which intercepts a part of length 4 units from the positive part of y-axis and parallel to the straight line :  $y = 3x + 5$  is .....  
 a)  $y = 3x + 4$                       b)  $y = 4x + 3$   
 c)  $y = 3x - 4$                       d)  $y = -3x + 4$
- 72) The two straight lines :  $y = 3x - 5$  and  $2y = 6x + 5$  are ..... straight lines.  
 a) parallel                      b) coincident  
 c) intersecting and not perpendicular                      d) perpendicular
- 73) If the two straight lines :  $3x - 4y - 3 = 0$  and  $k y + 4x - 8 = 0$  are perpendicular , the  $k =$  .....  
 a) -4                      b) -3                      c) 3                      d) 4
- 74) The two straight lines :  $x + y = 5$  and  $k x + 2 y = 0$  are parallel , then  $k =$  .....  
 a) -2                      b) -1                      c) 1                      d) 2
- 75) The two straight lines :  $y = ax + b$  and  $y = cx + d$  are perpendicular , then ..... = -1  
 a)  $a \times d$                       b)  $b \times c$                       c)  $a \times c$                       d)  $b \times d$

76) The straight line passing through the two points (5 , 4) and (1 , 5) is perpendicular to the straight line .....

a)  $4x = 3 - 4y$

b)  $5y + x = 4$

c)  $y = 4x$

d)  $x + 2y = 4$

77) If the straight line whose equation is  $y = (a - 1)x + 5$  is parallel to the straight line which passes through the two points (1 , 2) and (3 , 8) , then the value of a = .....

a) 3

b) 4

c) -4

d) 7

78) The slope of the straight line whose equation is :  $3y = ax - 5$  and passes through the point (20 , 5) is .....

a) -1

b) 1

c) -2

d)  $\frac{1}{3}$

79) The area of the triangle in square units which is bounded by the straight lines  $3x - 4y = 12$  ,  $x = 0$  ,  $y = 0$  equals .....

a) 6

b) 7

c) 12

d) -6

80) The distance between the point (-7 , -3) and y-axis is ..... length unit.

a) -7

b) -3

c) 7

d) 3

81) The point (0 , 4) bisects the distance between the two points (-1 , -1) , (x , y) , then the point (x , y) is .....

a) (1 , 9)

b) (-1 , 9)

c)  $(-\frac{1}{2}, \frac{3}{2})$

d) (-1 , 3)

82) If the two straight lines whose slope are  $(-\frac{1}{4})$  and (4k) are perpendicular, then k = .....

a) 1

b) 4

c) -4

d)  $\frac{1}{4}$



83) The slope of the straight line whose equation is :  $X - 5 = 0$  is.....

- a) 5                      b)  $\frac{1}{5}$                       c) undefined                      d) 0

84) If the straight line which passes through the two points (x,-1) and (4 , 2) is parallel to the straight line which passes through the two points (3 , 4) and (-3 , -2) , then X = .....

- a) -3                      b) 2                      c) 7                      d) 1

85) If ABCD is a rectangle where : A (-4 , -1) , C (4 , 5) , then the length of  $\overline{BD}$  = ..... Length unit.

- a) 10                      b) 6                      c) 5                      d) 4

86) If the two straight lines :  $3x - 4y - 3 = 0$  and  $kx + 3y - 8 = 0$  are perpendicular , then k = .....

- a) -4                      b) -3                      c) 3                      d) 4

87) The straight line whose equation is :  $2x - 3y - 6 = 0$  intercepts from y-axis a part of length ..... units.

- a) -6                      b) -2                      c)  $\frac{2}{3}$                       d) 2

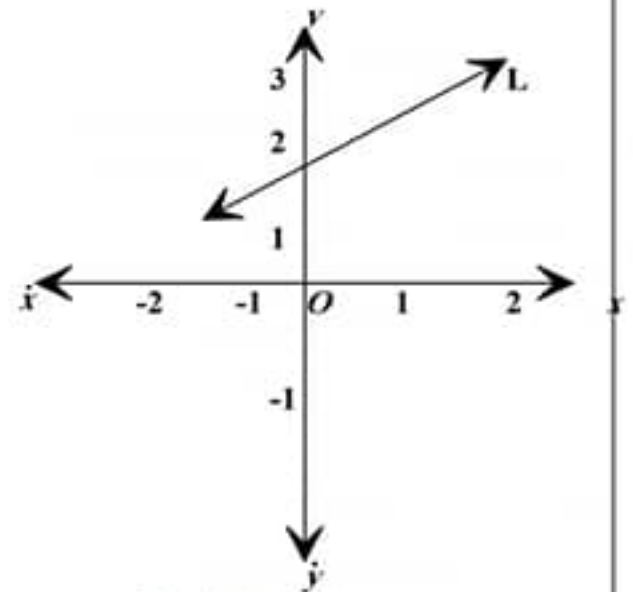
88) The equation of the straight line which passes through the point (2 , -3) and is parallel to X-axis is .....

- a)  $x=2$                       b)  $y=-3$                       c)  $x=-2$                       d)  $y=3$

89) In the opposite figure :

Which of the following represents  
The equation of the straight line L?

- a)  $y = x$
- b)  $y = 2$
- c)  $y + x = 2$
- d)  $y - x = 2$





**Prep 3**  
**First Term**

- 1 If  $(a + 3, b - 1) = (-2, 4)$ , then  $a + b = \dots\dots\dots$   
(a) 0 (b) 2 (c) 5 (d) 10
- 2 If  $X - y = 5$ , then  $6X - 6y = \dots\dots\dots$   
(a) 30 (b) 11 (c) 1 (d) -1
- 3 If  $X, 3, 4$  and  $6$  are proportional, then  $X = \dots\dots\dots$   
(a) 0 (b) 1 (c) 2 (d) 3  
 $\{3\} \cup ]3, 5] = \dots\dots\dots$   
(a)  $\emptyset$  (b)  $\{3\}$  (c)  $]3, 5]$  (d)  $[3, 5]$
- 4 The positive square root of mean of the squares of deviations of the values from their arithmetic mean is called  $\dots\dots\dots$   
(a) the range. (b) the standard deviation.  
(c) the median. (d) the mean.
- 5 If  $X^2 = 25$ , where  $X \in \mathbb{Z}$ , then  $X = \dots\dots\dots$   
(a) 5 (b) -5 (c)  $\pm 5$  (d) -25
- 6 If  $X \in \mathbb{R}$  and  $1 < X < 3$ , then  $(3X - 1) \in \dots\dots\dots$   
(a)  $]2, 8[$  (b)  $[2, 8]$  (c)  $]2, 8]$  (d)  $\{2, 8\}$
- 7 The range of the set of the values : 7, 3, 6, 5, 9 is  $\dots\dots\dots$   
(a) 3 (b) 4 (c) 6 (d) 12
- 8 Half of the number  $4^{20} = \dots\dots\dots$   
(a)  $2^{20}$  (b)  $2^{39}$  (c)  $2^{29}$  (d)  $4^{19}$
- 9 If  $X, Y$  are two non empty sets and  $n(X^2) = 4$ ,  $n(X \times Y) = 6$ , then  $n(Y^2) = \dots\dots\dots$   
(a) 4 (b) 9 (c) 16 (d) 12
- 10 If  $a \times \frac{b}{3} = \frac{a}{3}$ , then  $b = \dots\dots\dots$   
(a) -a (b) 1 (c)  $\frac{a}{3}$  (d) a
- 11 If  $XY = 7$ , then  $y \propto \dots\dots\dots$   
(a)  $\frac{1}{X}$  (b)  $X - 7$  (c)  $X$  (d)  $X + 7$

- 12 If  $(3, 5) \in \{3, 6\} \times \{x, 8\}$ , then  $x = \dots\dots\dots$   
 (a) 8 (b) 6 (c) 5 (d) 3
- 13 A quarter of the number  $2^8$  is  $\dots\dots\dots$   
 (a)  $2^6$  (b)  $2^{10}$  (c)  $\left(\frac{1}{2}\right)^8$  (d)  $\left(\frac{1}{2}\right)^6$
- 14 If  $\frac{3a}{5b} = \frac{1}{2}$ , then  $\frac{a}{b} = \dots\dots\dots$   
 (a)  $\frac{6}{5}$  (b)  $\frac{5}{6}$  (c)  $\frac{2}{3}$  (d)  $\frac{3}{2}$
- 15 If  $x$  is an odd number, then the next odd number directly is  $\dots\dots\dots$   
 (a)  $x^2$  (b)  $x^2 + 1$  (c)  $x + 1$  (d)  $x + 2$
- 16  $\frac{\text{Sum of the values}}{\text{Their number}}$  is  $\dots\dots\dots$   
 (a) the range. (b) the standard deviation.  
 (c) the mode. (d) the arithmetic mean.
- 17 If  $3 > x > 1$ ,  $x \in \mathbb{R}$ , then  $(3x - 1) \in \dots\dots\dots$   
 (a)  $\{2, 8\}$  (b)  $]2, 8[$  (c)  $[2, 8]$  (d)  $[2, 8[$
- 18 If the point  $(5, b - 7)$  lies on the  $x$ -axis, then  $b = \dots\dots\dots$   
 (a) 2 (b) 5 (c) 7 (d) 12
- 19 If  $f(x) = 7$ , then  $f(7) + f(-7) = \dots\dots\dots$   
 (a) 7 (b) -7 (c) -14 (d) 14
- 20 If  $\sqrt[3]{-27} = -\sqrt{x}$ , then  $x = \dots\dots\dots$   
 (a) 9 (b) -9 (c) 3 (d) -3
- 21 If  $\frac{a}{3} = \frac{b}{4}$ , then  $8a - 6b + 4 = \dots\dots\dots$   
 (a) 3 (b) 4 (c) 5 (d) 6
- 22 If  $X = \{2\}$ , then  $X^2 = \dots\dots\dots$   
 (a) 4 (b)  $\{4\}$  (c)  $(2, 2)$  (d)  $\{(2, 2)\}$
- 23 The positive square root of the average of squares of deviations of the values from their mean is called  $\dots\dots\dots$   
 (a) the mean. (b) the range.  
 (c) the standard deviation. (d) the mode.



- 24 If  $(X + 2, y) = (2, 3)$ , then  $X^5 y + 1 = \dots\dots\dots$   
 (a) 3 (b) 2 (c) zero (d) 1
- 25 If  $a \in X^2$  where  $X = \{X : 5 < X < 7, X \in \mathbb{N}\}$ , then  $a$  is  $\dots\dots\dots$   
 (a) 36 (b)  $\{36\}$  (c)  $(6, 6)$  (d)  $[5, 7]$
- 26 If  $y$  varies directly as  $X$ , then  $\dots\dots\dots$   
 (a)  $X$  varies inversely as  $y$  (b)  $X$  varies directly as  $y$   
 (c)  $y = X + 5$  (d)  $\frac{X}{3} = \frac{2}{y}$
- 27 If  $\frac{a}{b} = \frac{c}{d} = \frac{h}{m}$ , then  $\frac{a+c+h}{b+d+m} = \dots\dots\dots$   
 (a)  $\frac{a}{b} + \frac{c}{d} + \frac{h}{m}$  (b)  $\frac{c}{h}$  (c)  $\frac{c}{a}$  (d)  $\frac{c}{d}$
- 28 If  $f: \mathbb{R} \longrightarrow \mathbb{R}$  where  $f(X) = X^{k-2} + 3$  and  $f(2) = 11$ , then  $k = \dots\dots\dots$   
 (a) 5 (b) 3 (c) 2 (d) -3
- 29 If the range of the values  $6 + k, 6 - k, 6 + 5k, 6 - 2k$  is 14 where  $k \in \mathbb{N}$ , then  $k = \dots\dots\dots$   
 (a) 1 (b) 2 (c) 3 (d) 4
- 30 If  $\frac{5}{4} + \frac{5}{X} = \frac{5}{2}$ , then  $X = \dots\dots\dots$   
 (a) 2 (b) 4 (c) 5 (d)  $\frac{5}{2}$
- 31 If  $X + y = Xy = 5$ , then  $X^2 y + Xy^2 = \dots\dots\dots$   
 (a) 10 (b) 15 (c) 20 (d) 25
- 32 If  $1 < X < 3$ ,  $X \in \mathbb{R}$ , then  $(3X - 1) \in \dots\dots\dots$   
 (a)  $[2, 8[$  (b)  $[2, 8]$  (c)  $]2, 8[$  (d)  $\{2, 8\}$
- 33 If  $\frac{a+2b}{a-b} = \frac{2}{3}$ , then  $\frac{b}{a} = \dots\dots\dots$   
 (a)  $\frac{1}{8}$  (b) 8 (c)  $-\frac{1}{8}$  (d) -8
- 34 Which of the following values of the number  $X$  makes the range of the set of the values  $X, 15, 20, 24$  equal to 14?  
 (a) 30 (b) 25 (c) 19 (d) 10
- 35 If  $X \in \mathbb{R}_-$ , then the point  $(-X, \sqrt[3]{X})$  lies in the  $\dots\dots\dots$  quadrant.  
 (a) first (b) second (c) third (d) fourth

- 36 The function  $f : \mathbb{R} \longrightarrow \mathbb{R}$  where  $f(X) = aX + b$  represents a linear function on condition  $a \in \dots\dots\dots$
- (a)  $\mathbb{R}$  (b)  $\mathbb{R}_+$  (c)  $\mathbb{R} - \{0\}$  (d)  $\mathbb{R}_-$
- 37 The fourth proportional of the numbers : 4 , 12 , 16 is .....
- (a) 24 (b)  $\pm 24$  (c) 48 (d)  $\pm 48$
- 38 If the weekly wages in pounds of a set of workers in a factory are 170 , 180 , 180 , 230 and 240 , then the median of wages equals .....
- (a) 200 (b) 70 (c) 180 (d) 205
- 39 If  $X^2 + y^2 = 6$  ,  $XY = 5$  , then  $(X + y)^2 = \dots\dots\dots$
- (a) 16 (b)  $\pm 16$  (c) 11 (d)  $\pm 11$
- 40 The relation which represents the direct variation between  $y$  and  $X$  is .....
- (a)  $XY = 5$  (b)  $y = 3 - X$  (c)  $\frac{X}{3} = \frac{y}{5}$  (d)  $\frac{X}{3} = \frac{4}{y}$
- 41 If  $X = \{1, 3, 5\}$  and  $R$  is a function on  $X$  where  $R = \{(a, 3), (b, 1), (1, 5)\}$  , then the numerical value of  $a + b = \dots\dots\dots$
- (a) 4 (b) 6 (c) 8 (d) other.
- 42 If  $y \propto X$  ,  $y \propto \frac{1}{d}$  , then  $y \propto \dots\dots\dots$
- (a)  $Xd$  (b)  $\frac{d}{X}$  (c)  $\frac{X}{d}$  (d)  $X^2 d$
- 43 The standard deviation of the values 5 , 5 , 5 , 5 equals .....
- (a) zero (b) 5 (c) 6 (d) 2
- 44 The function  $d : d(X) = X^2 - (X - 3)^2$  is of the ..... degree.
- (a) zero (b) first (c) second (d) third
- 45  $\sqrt{36} + \sqrt{16} = \dots\dots\dots$
- (a) 10 (b) 24 (c) 52 (d) 100



- 46 The middle proportional between 3, 27 is .....  
 (a) 9 (b) -9 (c)  $\pm 9$  (d) 1
- 47 If  $f(x) = 2$ , then  $f(2) + f(-2) = \dots\dots\dots$   
 (a) zero (b) 4 (c) -4 (d) 1
- 48 The positive number which twice its square equals 50 is .....  
 (a) 5 (b) 10 (c) 25 (d) 100
- 49 If  $x + y = xy = 5$ , then  $x^2y + y^2x = \dots\dots\dots$   
 (a) 10 (b) 15 (c) 20 (d) 25
- 50 The simplest and easiest method of measuring dispersion is .....  
 (a) the range. (b) the standard deviation.  
 (c) the arithmetic mean. (d) the mode.
- 50 If  $(2, 3) \in \{2, 5\} \times \{x, 6\}$ , then  $x = \dots\dots\dots$   
 (a) 6 (b) 5 (c) 3 (d) 2  
 $(\sqrt{5} - 3)(\sqrt{5} + 3) = \dots\dots\dots$   
 (a) 8 (b) 2 (c) 4 (d) -4
- 50 The positive square root of the mean of the squares of deviations of the values from their arithmetic mean is called .....  
 (a) the range. (b) the arithmetic mean.  
 (c) the standard deviation. (d) the mode.
- 51 If the number  $\frac{3}{b} + 1 = 4$ , then  $b = \dots\dots\dots$  where  $b \neq 0$   
 (a) 1 (b) 2 (c) 3 (d) 4
- 52  $\mathbb{Z} \cup \mathbb{N} = \dots\dots\dots$   
 (a)  $\emptyset$  (b)  $\mathbb{Z}$  (c)  $\mathbb{N}$  (d)  $\mathbb{R}$
- 53 If  $\frac{a}{b} = \frac{c}{d} = m$  (where  $m \in \mathbb{R}^*$ ), then  $\frac{ac}{bd} = \dots\dots\dots$   
 (a)  $m$  (b)  $m^2$  (c)  $2m$  (d)  $2m^2$

- 54  $[1, 3] - \{0, 1\} = \dots\dots\dots$   
 (a)  $]1, 3[$  (b)  $]1, 3]$  (c)  $[1, 3[$  (d)  $\{3\}$
- 55 If  $2^X = 2^6$ , then  $X = \dots\dots\dots$   
 (a) 3 (b) 4 (c) 6 (d) 64
- 56 20% from 10 pounds =  $\dots\dots\dots$  pounds.  
 (a) 2 (b) 2.5 (c) 5 (d) 20
- 57 If  $n(X) = 3$ ,  $n(X \times Y) = 12$ , then  $n(Y) = \dots\dots\dots$   
 (a) 4 (b) 9 (c) 15 (d) 36
- 58 If  $3a = 4b$ , then  $a : b = \dots\dots\dots$   
 (a)  $3 : 4$  (b)  $4 : 7$  (c)  $3 : 7$  (d)  $4 : 3$
- 59 The range of the set of the values 7, 3, 6, 9 and 5 equals  $\dots\dots\dots$   
 (a) 3 (b) 4 (c) 6 (d) 12
- 60 If  $n(X) = 3$ ,  $n(Y^2) = 4$ , then  $n(X \times Y) = \dots\dots\dots$   
 (a) 6 (b) 12 (c) 18 (d) 36
- 61 The range of the set of the values 7, 4, 6, 9 and 5 equals  $\dots\dots\dots$   
 (a) 3 (b) 4 (c) 5 (d) 6
- 62 If  $\frac{y}{x} = 5$ , then  $y \propto \dots\dots\dots$   
 (a)  $x$  (b)  $\frac{1}{x}$  (c)  $x - 5$  (d)  $x + 5$
- 63 If  $\frac{3}{4} + \frac{3}{x} = \frac{3}{2}$ , then  $x = \dots\dots\dots$   
 (a)  $\frac{3}{2}$  (b) 2 (c) 3 (d) 4
- 64 The third proportional of the two numbers 3 and 6 is  $\dots\dots\dots$   
 (a)  $\frac{1}{2}$  (b) 2 (c) 9 (d) 12
- 65 The solution set of the equation  $(X - 1)^2 = 9$  in  $\mathbb{R}$  is  $\dots\dots\dots$   
 (a)  $\{4\}$  (b)  $\{-2\}$  (c)  $\{4, -2\}$  (d)  $\{3\}$




- 66 If  $X = ]-\infty, 0[$ , then  $X^c = \dots\dots\dots$   
 (a)  $\mathbb{R}_+$  (b)  $[0, \infty[$  (c)  $]-\infty, 0]$  (d)  $\mathbb{R}_-$
- 67 The function  $f : f(X) = (X - 2)^2 - X^2$  is of the ..... degree.  
 (a) first (b) second (c) third (d) fourth
- 68 If  $\sum (X - \bar{X})^2 = 36$  of a set of values and the number of these values = 9, then  $\sigma = \dots\dots\dots$   
 (a) 2 (b) 18 (c) 27 (d) 4
- 69 The middle proportional between  $3X^3$  and  $27X$  is .....  
 (a)  $9X^2$  (b)  $\pm 9X^4$  (c)  $\pm 9X^2$  (d)  $9X^4$
- 70 If  $y^2 + 4X^2 = 4Xy$ , then .....  
 (a)  $y \propto X$  (b)  $y \propto X^2$  (c)  $y \propto \frac{1}{X}$  (d)  $y \propto \frac{1}{X^2}$
- 71 If  $\{2\} \times \{X, y\} = \{(2, 4), (2, 3)\}$ , then  $X - y = \dots\dots\dots$   
 (a) 1 (b) ~~-1~~ (c)  $\pm 1$  (d) zero
- 72 If  $3^X = 9^2$ , then  $X = \dots\dots\dots$   
 (a) 3 (b) 4 (c) 6 (d) 64
- 73 The range of the set of the values 7, 3, 6, 8 and 5 equals .....  
 (a) 3 (b) 8 (c) 11 (d) 5
- 74 If the point  $(X - 4, 2 - X)$  where  $X \in \mathbb{Z}$  is located in the third quadrant, then  $X = \dots\dots\dots$   
 (a) 2 (b) 3 (c) 4 (d) 6
- 75 The relation which represents the direct variation between the two variables  $X$  and  $y$  is .....  
 (a)  $XY = 7$  (b)  $y = X + 5$  (c)  $\frac{X}{3} = \frac{7}{y}$  (d)  $\frac{X}{2} = \frac{y}{5}$
- 76 The solution set of the equation  $X^2 - 25 = 0$  in  $\mathbb{R}$  is .....  
 (a)  $\{5, -5\}$  (b)  $[-5, 5]$  (c) 5 (d) -5

- 77 If  $(X + 1, \sqrt[3]{27}) = (-1, y)$ , then the point  $(X, y)$  lies in the ..... quadrant.  
 (a) first (b) second (c) third (d) fourth
- 78 If  $\frac{3}{4} + \frac{3}{X} = \frac{3}{2}$ , then  $X =$  .....  
 (a) 2 (b) 4 (c) 3 (d)  $\frac{3}{2}$
- 79 Twice of the number  $2^8$  is .....  
 (a)  $2^{10}$  (b)  $2^{16}$  (c)  $2^4$  (d)  $2^9$
- 80 If  $XY = 12$ , then  $y$  varies directly as .....  
 (a)  $\frac{1}{X}$  (b)  $X - 12$  (c)  $X$  (d)  $X + 12$
- 81 Omar bought 4 notebooks and 3 pens, he paid 50 pounds for them. If the price of a pen is twice the price of a notebook, then the price of a notebook is ..... pounds.  
 (a) 4 (b) 5 (c) 10 (d) 20
- 82 If the range of the set of the values 7,  $X$ , 8, 9 and 5 is 6, then  $X =$  .....  
 (a) 3 (b) 4 (c) 6 (d) 12
- 82 The middle proportional between  $a$  and  $c$  equals .....  
 (a)  $\sqrt{a+c}$  (b)  $\frac{a+c}{2}$  (c)  $\pm\sqrt{ac}$  (d)  $a+c$
- 83 The difference between the greatest value and the smallest value of a set of data is called .....  
 (a) the range. (b) the arithmetic mean.  
 (c) the mode. (d) the standard deviation.
- 84  $|\sqrt[3]{-8}| =$  .....  
 (a) 4 (b) 2 (c) -2 (d)  $\pm 2$
- 85  $\frac{7}{X}$  is a rational number if  $X \neq$  .....  
 (a) 7 (b) -7 (c) 1 (d) zero
- 86 If the point  $(a, 3 - a)$  lies on the  $X$ -axis, then  $a =$  .....  
 (a) zero (b) 3 (c) -3 (d) 5
- 87 If  $-X > 3$ , then  $X \in$  .....  
 (a)  $\{-3\}$  (b)  $]3, \infty[$  (c)  $] -\infty, 3[$  (d)  $] -\infty, -3[$



- 88 The ordered pair  $(X^2, y^2)$ , where  $X \neq 0, y \neq 0$  lies in the ..... quadrant.  
 (a) first (b) second (c) third (d) fourth
- 89 The positive square root of mean of the squares of deviations of the values from their arithmetic mean is called .....  
 (a) the range. (b) the median.  
 (c) the standard deviation. (d) the mode.
- 90 If  $X$  and  $X + 17$  are two prime numbers, then  $X =$  .....  
 (a) 1 (b) 2 (c) 3 (d) 5
- 91 If  $Xy = 5$ , then  $y \propto$  .....  
 (a)  $X$  (b)  $\frac{1}{X}$  (c)  $X^2$  (d)  $\frac{1}{X^2}$
- 92 If  $X = \{3\}$ , then  $n(X^2) =$  .....  
 (a) 1 (b) 9 (c)  $\{(3, 3)\}$  (d) 3
- 93 The ratio between the area of a square of side length  $l$  and the area of a square of side length  $3l$  equals .....  
 (a) 1 : 3 (b) 3 : 1 (c) 1 : 9 (d) 9 : 1
- 94  $\frac{1}{3}$  of the number  $3^4 =$  .....  
 (a) 3 (b)  $3^2$  (c)  $3^3$  (d)  $2^3$
- 95 If  $n(X^2) = 4$ ,  $n(X \times Y) = 6$ , then  $n(Y^2) =$  .....  
 (a) 12 (b) 9 (c) 6 (d) 3
- 96  $4, 6 \cap \{4, 6\} =$  .....  
 (a)  $\{5\}$  (b)  $[4, 6]$  (c)  $\{4, 6\}$  (d)  $\emptyset$
- 97 If  $X, y, z$  are in continued proportion, then  $X =$  .....  
 (a)  $\pm \sqrt{yz}$  (b)  $yz$  (c)  $\frac{y^2}{z}$  (d)  $\frac{y}{z}$
- 98  $\sqrt[3]{64} = \sqrt{\quad}$  .....  
 (a) 2 (b) 16 (c) 8 (d) 4
- 99 If all the values are equal, then .....  
 (a)  $X - \bar{X} > 0$  (b)  $X - \bar{X} < 0$  (c)  $\bar{X} = 0$  (d)  $\sigma = 0$

1	<p>If <math>(5, x - 8) = (y + 1, -5)</math>, then <math>x + y =</math> .....</p> <p>a) 4 b) 5 c) 6 d) 7</p>	d
2	<p><math>\{3\} \times \{3\} =</math> .....</p> <p>a) <math>\{9\}</math> b) <math>\{3\}</math> c) <math>\{(3, 3)\}</math> d) 9</p>	c
3	<p>If <math>n(X) = 3</math>, <math>n(X \times Y) = 12</math>, then <math>n(Y) =</math> .....</p> <p>a) 4 b) 9 c) 15 d) 36</p>	a
4	<p>If <math>n(X^2) = 4</math>, <math>n(X \times Y) = 8</math>, then <math>n(Y^2) =</math> .....</p> <p>a) 1 b) 4 c) 16 d) 64</p>	c
5	<p>In the opposite figure: <math>\sin A =</math> .....</p> <p>a) <math>\frac{5}{12}</math> b) <math>\frac{12}{5}</math> c) <math>\frac{5}{13}</math> d) <math>\frac{12}{13}</math></p> 	d
6	<p>If <math>\sin X = \frac{1}{2}</math> where <math>X</math> is an acute angle, then <math>m(\angle X) =</math> .....</p> <p>a) 30 b) 45 c) 60 d) 40</p>	a
7	<p>If <math>2\sin X = \tan 60^\circ</math> where <math>X</math> is an acute angle, then: <math>m(\angle X) =</math> .....</p> <p>a) <math>30^\circ</math> b) <math>45^\circ</math> c) <math>60^\circ</math> d) <math>40^\circ</math></p>	c
8	<p><math>\tan 75^\circ =</math> .....</p> <p>a) <math>\frac{\sin 75^\circ}{\cos 75^\circ}</math> b) <math>\frac{\cos 75^\circ}{\sin 75^\circ}</math> c) <math>3 \tan 25^\circ</math> d) <math>3 \sin 25^\circ \cos 25^\circ</math></p>	a



1	If $\frac{3a}{5b} = \frac{1}{2}$ , then $\frac{a}{b} =$ ..... a) $\frac{3}{2}$ c) $\frac{5}{6}$ b) $\frac{6}{5}$ d) $\frac{2}{3}$	c
2	If 5a, 2, 3b, 7 are four proportional quantities then $\frac{a}{b} =$ ..... a) $\frac{3}{7}$ c) $\frac{3}{5}$ b) $\frac{6}{35}$ d) $\frac{3}{2}$	b
3	If $\frac{a+2b}{a-b} = \frac{2}{3}$ , then $\frac{b}{a} =$ ..... a) $\frac{1}{8}$ c) $-\frac{1}{8}$ b) 8 d) -8	c
4	If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{3}{5}$ , then $\frac{a-2c+e}{b-2d+f} =$ ..... a) $\frac{3}{5}$ c) $\frac{5}{3}$ b) $-\frac{3}{5}$ d) $\frac{5}{3}$	a
5	The distance between the two points (15, 0), (6, 0) equals ..... a) 21 c) 4.5 b) 9 d) 189	b
6	If the point (X, 0) is the midpoint of the line segment whose ends are (1, -5) and (2, 5), then the value of X = ..... a) 2.5 c) 0 b) 2 d) 1.5	d
7	The slope of the straight line which is parallel to the straight line passing through the two points (2, 3) and (-2, 3) equals ..... a) undefined c) 0 b) 1 d) $\frac{3}{2}$	c
8	The triangle whose vertices are A (3, -1), B (X, 3) and C (5, 3) is a right-angled triangle at A, then the value of X = ..... a) 5 c) $\frac{1}{5}$ b) -5 d) $-\frac{1}{5}$	b







1	<p>If <math>f</math> is a function from the set <math>X</math> to the set <math>Y</math>, then: <math>X</math> is called .....</p> <p>a) the range of the function <math>f</math>                      b) the domain of the function <math>f</math></p> <p>c) The codomain of the function <math>f</math>              d) the rule of the function <math>f</math></p>	b
2	<p>If: <math>f(X) = aX + 6, f(2) = 2</math>, then <math>a =</math> .....</p> <p>a) 2    b) -2</p> <p>c) 4    d) 6</p>	b
3	<p>If <math>(3, y) \in</math> the set of the function <math>f</math> where <math>f(X) = X + 2</math>, then <math>y =</math> .....</p> <p>a) 1    b) 5</p> <p>c) 4    d) 6</p>	b
4	<p>The difference between the greatest value and the smallest value in a set of values is called .....</p> <p>a) mean    b) mode</p> <p>c) median    d) range</p>	d
5	<p>If <math>\cos (X + 10^\circ) = \frac{1}{2}</math> where <math>(X + 10^\circ)</math> is an acute angle, then <math>X =</math> .....</p> <p>a) <math>30^\circ</math>    b) <math>40^\circ</math></p> <p>c) <math>70^\circ</math>    d) <math>50^\circ</math></p>	d
6	<p>In the rhombus ABCD where <math>A (-1, 7), B (-3, 1)</math>, then the perimeter of the rhombus equals ..... length unit</p> <p>a) <math>8\sqrt{10}</math>    b) 40</p> <p>c) <math>4\sqrt{10}</math>    d) <math>2\sqrt{10}</math></p>	a
7	<p>The slope of the straight line which is parallel to X-axis = .....</p> <p>a) 2    b) -1</p> <p>c) 0    d) 1</p>	c
8	<p>The slope of the straight line which is perpendicular to the straight line which passes through the two points <math>A (2, -3), B (3, 5)</math> is .....</p> <p>a) 8    b) <math>\frac{1}{8}</math></p> <p>c) -8    d) <math>-\frac{1}{8}</math></p>	a





1	<p>If <math>f</math> is a function from the set <math>X</math> to the set <math>Y</math>, then: <math>Y</math> is called _____.</p> <p>a) the domain of the function                      b) the codomain of the function</p> <p>c) the range of the function                        d) the rule of the function</p>	b
2	<p>If <math>(a, a) \in</math> the set of the function <math>f</math> where <math>f(X) = 2X + 3</math>, then <math>a =</math> _____</p> <p>a) 3    b) 2</p> <p>c) -3    d) 0</p>	c
3	<p>If <math>x</math> varies inversely as <math>y</math> then <math>y =</math> _____</p> <p>a) <math>m</math>    b) <math>m \times x</math></p> <p>c) <math>\frac{m}{x}</math>    d) <math>x</math></p>	c
4	<p>The positive square root of the average of squares of deviation of the values from their mean is called the _____</p> <p>a) mode    b) standard deviation</p> <p>c) range    d) mean</p>	b
5	<p>If <math>\sin x = \sin 60^\circ \cos 30^\circ - \cos 60^\circ \sin 30^\circ</math> where <math>x</math> is an acute angle that equals _____</p> <p>a) <math>60^\circ</math>    b) <math>30^\circ</math></p> <p>c) <math>45^\circ</math>    d) <math>0^\circ</math></p>	b
6	<p>If the distance between the two points <math>A(0, K)</math> and <math>B(4, 0)</math> is 5 length units, then the value of <math>K</math> is _____</p> <p>a) 1    b) 5</p> <p>c) <math>\pm 3</math>    d) 3</p>	c
7	<p>The slope of the straight line parallel to <math>y</math>-axis = _____</p> <p>a) -1    b) 1</p> <p>c) undefined    d) 0</p>	c
8	<p>If <math>A(-1, -1)</math>, <math>B(2, 3)</math> and <math>C(6, y)</math>, where <math>ABC</math> is a right-angled triangle at <math>B</math> then <math>y =</math> _____</p> <p>a) 1    b) 0</p> <p>c) 6    d) 3</p>	b



1	<p>If the point <math>(x - 4, 2 - x)</math> where <math>x \in \mathbb{Z}</math> is located on the third quadrant, then <math>x =</math></p> <p>a) 2 b) 3 c) 4 d) 6</p>	b
2	<p>If: <math>f(X) = x^2 - x + 3</math>, then: <math>f(3) =</math></p> <p>a) 3 b) 6 c) 9 d) 12</p>	c
3	<p>If <math>(-2, y)</math> belongs to the curve of the function <math>f: f(X) = X^2 + 1</math>, then <math>Y =</math></p> <p>a) 2 b) 3 c) 5 d) 6</p>	c
4	<p>The middle proportion between: <math>2a</math> and <math>8ab^2</math> is</p> <p>a) <math>\pm 4ab</math> b) <math>4ab</math> c) <math>16ab</math> d) <math>\pm 16ab</math></p>	a
5	<p>If <math>2 \sin X = \tan 60^\circ</math> where <math>X</math> is an acute angle, then: <math>m(\angle X) =</math></p> <p>a) <math>30^\circ</math> b) <math>45^\circ</math> c) <math>40^\circ</math> d) <math>60^\circ</math></p>	d
6	<p>In the square ABCD if A (0, 5) and B (4, 2), then the area of the square equals _____ square units.</p> <p>a) 16 b) 25 c) 9 d) 5</p>	b
7	<p>ABCD is a parallelogram whose vertices are A (1, 5), B (3, 3), C (0, -1) and D (X, y) respectively then the coordinates of the point D are</p> <p>a) (2, 5) b) (-2, 1) c) (5, 2) d) (9, 4)</p>	b
8	<p>If the straight line <math>\overline{CD}</math> is parallel to the y-axis where C (M, 4) and D (-5, 7), then <math>M =</math></p> <p>a) 0 b) 4 c) 7 d) -5</p>	d

<b>1</b>	If the point $(X, 2)$ lies on Y-axis, then $X = \dots\dots\dots$ a) zero c) 2 b) 1 d) 3	<b>a</b>
<b>2</b>	The liner function given by the rule $y = X - 1$ is represented graphically by a straight line intersecting the X-axis at the point ..... a) $(0, 0)$ c) $(1, 1)$ b) $(1, 0)$ d) $(0, 1)$	<b>b</b>
<b>3</b>	If $(X^2 - 8) : (2X^2 + 1) = 1 : 3$ then $x = \dots\dots\dots$ a) zero c) $\pm 5$ b) 5 d) $\pm 3$	<b>c</b>
<b>4</b>	If $y \propto X$ and $y = 2$ as $X = 4$ , then: $y = \dots\dots\dots$ a) $\frac{1}{2}x$ c) $4x$ b) $2x$ d) $x$	<b>a</b>
<b>5</b>	$\sin 60^\circ + \cos 30^\circ + \tan 60^\circ = \dots\dots\dots$ a) $\sqrt{3}$ c) 3 b) $2\sqrt{3}$ d) $\frac{\sqrt{2}}{2}$	<b>b</b>
<b>6</b>	The distance between the point $(-3, 4)$ and the point of origin = ..... a) 3 c) 5 b) 4 d) $\sqrt{7}$	<b>c</b>
<b>7</b>	If the point $(5, 3)$ is the midpoint of AB where its terminals are A $(15, y)$ and B $(-5, -2)$ , then the value of $y$ is ..... a) 4 c) 8 b) 6 d) 5	<b>c</b>
<b>8</b>	The slope of the straight line which is parallel to the straight line passing through the two points $(2, 3)$ and $(-2, 3)$ equals ..... a) 3 c) 2 b) 1 d) 0	<b>d</b>



1	<p>If the point <math>(-4, Y)</math> lies on the X-axis, then <math>2Y - 1 = \dots\dots\dots</math></p> <p>a) <math>-1</math> <span style="float: right;">b) <math>1</math></span></p> <p>c) <math>-8</math> <span style="float: right;">d) <math>-9</math></span></p>	a
2	<p>The function <math>f: f(X) = X^2(X - 3)^2</math> is a polynomial of the <math>\dots\dots\dots</math> degree.</p> <p>a) first <span style="float: right;">b) second</span></p> <p>c) third <span style="float: right;">d) fourth</span></p>	d
3	<p>The point of the vertex of the curve of the function <math>f: f(X) = 2X^2 - 4X + 5</math> is <math>\dots\dots</math></p> <p>a) <math>(1, 3)</math> <span style="float: right;">b) <math>(1, 0)</math></span></p> <p>c) <math>(3, 1)</math> <span style="float: right;">d) <math>(0, 1)</math></span></p>	a
4	<p>One of the measurements of dispersion measurements is <math>\dots\dots</math></p> <p>a) median <span style="float: right;">b) mode</span></p> <p>c) mean <span style="float: right;">d) range</span></p>	b
5	<p>If <math>\cos C = \frac{1}{2}</math> where <math>C</math> is an acute angle, then: <math>m(\angle C) = \dots\dots</math></p> <p>a) <math>30^\circ</math> <span style="float: right;">b) <math>60^\circ</math></span></p> <p>c) <math>45^\circ</math> <span style="float: right;">d) <math>90^\circ</math></span></p>	b
6	<p>The radius length of the circle whose centre is <math>(7, 4)</math> and passes through <math>(3, 1)</math> equals <math>\dots\dots</math></p> <p>a) <math>7</math> <span style="float: right;">b) <math>4</math></span></p> <p>c) <math>5</math> <span style="float: right;">d) <math>3</math></span></p>	c
7	<p>If the points <math>A(3, 2)</math>, <math>B(4, -3)</math>, <math>C(-1, -2)</math> and <math>D(-2, 3)</math> are vertices of the rhombus ABCD, then the coordinates of the point of intersection of the two diagonals are <math>\dots\dots\dots</math></p> <p>a) <math>(1, 0)</math> <span style="float: right;">b) <math>(\frac{1}{2}, -\frac{1}{2})</math></span></p> <p>c) <math>(0, 1)</math> <span style="float: right;">d) <math>(0, 0)</math></span></p>	a
8	<p>If the straight line AB is parallel to the X-axis where <math>A(8, 3)</math> and <math>B(2, K)</math>, then <math>K = \dots\dots</math></p> <p>a) <math>8</math> <span style="float: right;">b) <math>3</math></span></p> <p>c) <math>2</math> <span style="float: right;">d) <math>0</math></span></p>	b

1	If $\sin X = \frac{1}{2}$ , where $X$ is the measure of an acute angle, then $X = \dots\dots\dots$ (a) 30 (b) 45 (c) 60 (d) 90
2	The straight line whose equation is $y = 3X + 4$ intercepts from the positive part of y-axis a part of length $\dots\dots\dots$ length units. (a) 3 (b) 4 (c) 5 (d) 7
3	The equation of the straight line whose slope equals 1 and passes through the origin point is $\dots\dots\dots$ (a) $y = X + 1$ (b) $X = 1$ (c) $y = 1$ (d) $y = X$
4	If $\angle X$ , $\angle Y$ are two complementary angles and $\sin X = \frac{3}{5}$ , then $\cos Y = \dots\dots\dots$ (a) $\frac{4}{5}$ (b) $\frac{3}{5}$ (c) $\frac{3}{4}$ (d) $\frac{5}{3}$
5	The straight line whose equation is : $y - 2X - 5 = 0$ cuts from the positive part of y-axis a part of length $\dots\dots\dots$ length units. (a) 2 (b) 5 (c) 7 (d) 10
6	The slope of the straight line which makes with the positive direction of X-axis an angle whose positive measure is $X^\circ$ equals $\dots\dots\dots$ (a) $\sin X$ (b) $\cos X$ (c) $\frac{\sin X}{\cos X}$ (d) $\sin X + \cos X$
7	If C (6, -4) is the midpoint of $\overline{AB}$ where A (5, -3), then B is $\dots\dots\dots$ (a) (7, -5) (b) (-5, -7) (c) (-5, 7) (d) (11, -7)
8	If $\sin \theta = 0.6$ , then $m(\angle \theta) = \dots\dots\dots$ (a) $51^\circ$ $33'$ $35''$ (b) $36^\circ$ $52'$ $12''$ (c) $47^\circ$ $15'$ $48''$ (d) $45^\circ$ $15'$ $6''$
9	ABC is a right-angled triangle at B where A (1, 4), B (-1, -2), then the slope of $\overline{BC}$ equals $\dots\dots\dots$ (a) $-\frac{1}{3}$ (b) 3 (c) $\frac{1}{3}$ (d) -3
10	The sum of the lengths of any two sides of a triangle is $\dots\dots\dots$ the length of the third side. (a) smaller than (b) equal to (c) greater than (d) twice



11

If  $\cos X = \frac{\sqrt{2}}{2}$  where  $X$  is the measure of an acute angle, then  $\sin 2X = \dots\dots\dots$

- (a)  $\frac{1}{\sqrt{2}}$  (b)  $-\frac{\sqrt{2}}{2}$  (c) 1 (d)  $\frac{2}{\sqrt{2}}$

12

If ABCD is a rectangle A (-4, -1), C (4, 5), then the length of  $\overline{BD} = \dots\dots\dots$  length units.

- (a) 10 (b) 6 (c) 5 (d) 4

13

The perpendicular length between  $X = 5$  and  $X + 3 = 0$  equals  $\dots\dots\dots$  length units.

- (a) 2 (b) 8 (c) -8 (d) 5

14

$\Delta ABC$  is an isosceles triangle and right-angled at C and the length of each leg is 1, then  $AB : BC : CA = \dots\dots\dots$

- (a)  $1 : 1 : \sqrt{2}$  (b)  $1 : \sqrt{2} : 1$  (c)  $\sqrt{2} : 1 : 2$  (d)  $\sqrt{2} : 1 : 1$

In the opposite figure :

The equation of the straight line L is  $\dots\dots\dots$

- (a)  $X = \sqrt{3}y$  (b)  $y = \sqrt{3}X$   
(c)  $X = y$  (d)  $y = \sqrt{3}$



16

In  $\Delta ABC$ , if  $m(\angle B) = 90^\circ$ , then  $\sin A + \cos C = \dots\dots\dots$

- (a)  $2 \sin C$  (b)  $2 \cos A$  (c)  $2 \cos C$  (d)  $\tan A$

17

If  $\sin 2X = \frac{1}{2}$  where  $2X$  is the measure of an acute angle, then  $X = \dots\dots\dots^\circ$

- (a) 15 (b) 60 (c) 70 (d) 30

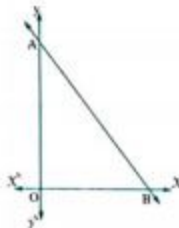
In the opposite figure :

If  $AO = 8$  length units

,  $OB = 6$  length units

, then the equation of  $\overline{AB}$  is  $\dots\dots\dots$

- (a)  $y = \frac{4}{3}X + 8$  (b)  $y = -\frac{4}{3}X - 8$   
(c)  $y = \frac{3}{4}X - 8$  (d)  $y = -\frac{4}{3}X + 8$



18

19

The perpendicular distance between the point  $(3, -4)$  and X-axis equals ..... length units.

- (a) 3 (b) -4 (c) 5 (d) 4

20

In the square XYZL, if the slope of  $\overrightarrow{XZ} = 1$ , then the slope of  $\overrightarrow{YL} = \dots\dots\dots$

- (a) 1 (b) -1 (c)  $\pm 1$  (d)  $45^\circ$

21

ABC is a right-angled triangle at B, where  $3 AC = 5 BC$ , then  $\tan A = \dots\dots\dots$

- (a)  $\frac{3}{5}$  (b)  $\frac{5}{3}$  (c)  $\frac{3}{4}$  (d)  $\frac{4}{3}$

22

ABC is a triangle. If  $(AC)^2 > (AB)^2 + (BC)^2$ , then  $\angle C$  is .....

- (a) acute, (b) obtuse, (c) right, (d) straight.

23

The opposite figure represents a semicircle with the radius length of its circle is 2 cm, then the perimeter of this figure = ..... cm.

- (a)  $2\pi$  (b)  $4\pi$   
(c)  $2\pi + 4$  (d)  $4\pi + 2$



24

If  $\cos \frac{X}{2} = \frac{\sqrt{3}}{2}$  where  $\frac{X}{2}$  is the measure of an acute angle, then  $\tan (X - 15^\circ) = \dots\dots\dots$

- (a)  $\sqrt{3}$  (b)  $\frac{1}{\sqrt{3}}$  (c) 1 (d)  $\frac{\sqrt{3}}{2}$

25

If  $\frac{-2}{3}$ ,  $\frac{6}{k}$  are the slopes of two perpendicular straight lines, then  $k = \dots\dots\dots$

- (a) 4 (b) -9 (c) -4 (d) 9

26

In the triangle XYZ, if  $(YZ)^2 + (XZ)^2 < (XY)^2$ , then  $\angle Z$  is .....

- (a) acute, (b) right, (c) obtuse, (d) straight.

27

If the distance between the two points  $(a, 0)$  and  $(0, 1)$  is one length unit, then  $a = \dots\dots\dots$

- (a) 1 (b) -1 (c) 0 (d) 2

28

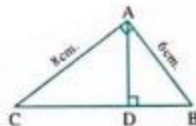
If the origin point is the midpoint of  $\overline{AB}$  where  $A(2, -3)$ , then the point B is .....

- (a)  $(-3, 2)$  (b)  $(-2, 3)$  (c)  $(-2, -3)$  (d)  $(2, 3)$



29

In the opposite figure : ABC is a right-angled triangle at A in which  $\overline{AD} \perp \overline{BC}$  cutting it at D , AB = 6 cm. and AC = 8 cm. , then AD = ..... cm.



- (a) 3.6 (b) 8.4 (c) 4.8 (d) 6.4

30

If  $m(\angle A) = 75^\circ$  ,  $\sin A = \cos B$  ,  $\angle B$  is acute , then  $m(\angle B) = \dots\dots\dots$

- (a)  $45^\circ$  (b)  $75^\circ$  (c)  $15^\circ$  (d)  $105^\circ$

40

If ABC is a right-angled triangle at B , AB = BC , then  $\tan A = \dots\dots\dots$

- (a)  $\frac{1}{3}$  (b)  $\sqrt{3}$  (c) 1 (d)  $\frac{1}{\sqrt{2}}$

41

If  $\overline{AB} \perp \overline{CD}$  and the slope of  $\overline{AB} = 0$  , then the slope of  $\overline{CD} = \dots\dots\dots$

- (a) 1 (b) - 1 (c) zero (d) not defined.

42

If C is the midpoint of  $\overline{AB}$  where A (- 3 , 6) , B (3 , - 6) , then C = ..... .

- (a) (6 , - 6) (b) (0 , 0) (c) (3 , 3) (d) (- 3 , 0)

43

The equation of the straight line which passes through the origin point and its slope = 3 is ..... .

- (a)  $y = x$  (b)  $y = 3$  (c)  $x = 3$  (d)  $y = 3x$

44

ABC is a triangle in which  $m(\angle A) = 75^\circ$  ,  $\sin B = \cos B$  , then  $m(\angle C) = \dots\dots\dots^\circ$

- (a) 90 (b) 60 (c) 45 (d) 30

45

If  $\overline{XY}$  is the axis of symmetry of  $\overline{AB}$  , then  $XA \dots\dots\dots XB$

- (a) > (b) < (c) = (d)  $\leq$

46

If A (- 2 , 5) , B (2 , - 5) , then the midpoint of  $\overline{AB}$  is ..... .

- (a) (0 , 0) (b) (2 , 5) (c) (5 , 2) (d) (- 5 , - 2)

47

The product of multiplying the slopes of two perpendicular straight lines equals ..... .

- (a) 1 (b) - 1 (c)  $\pm 1$  (d) zero

48

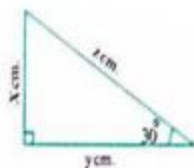
In the opposite figure :

(a)  $x + y = \frac{1}{2} z$

(b)  $z = x^2 + y^2$

(c)  $x = \frac{1}{2} z$

(d)  $2y = z$



49

$\sin 30^\circ = \cos \dots\dots\dots$

(a)  $10^\circ$

(b)  $45^\circ$

(c)  $30^\circ$

(d)  $60^\circ$

50

If  $\overline{AB} \parallel \overline{CD}$  and the slope of  $\overline{AB} = \frac{2}{3}$ , then the slope of  $\overline{CD} = \dots\dots\dots$

(a)  $\frac{3}{2}$

(b)  $-\frac{3}{2}$

(c)  $-\frac{2}{3}$

(d)  $\frac{2}{3}$

51

In the opposite figure :

$A \in \overline{AB}$ ,  $B \in \overline{AB}$ ,  $m(\angle C) = 90^\circ$

, then  $x + y = \dots\dots\dots$

(a)  $90^\circ$

(b)  $180^\circ$

(c)  $270^\circ$

(d)  $360^\circ$



52

The triangle whose sides lengths are 2 cm.,  $(x + 2)$  cm. and 5 cm. becomes an isosceles triangle when  $x = \dots\dots\dots$

(a) zero

(b) 2

(c) 3

(d) 5

53

In the opposite figure :

$\Delta ABC$  is  $\dots\dots\dots$  triangle.

(a) an isosceles.

(b) an equilateral.

(c) an obtuse-angled.

(d) a right-angled.



54

$$\frac{\cos^2 60^\circ + \cos^2 30^\circ + \tan^2 45^\circ}{\sin 60^\circ \tan 60^\circ - \sin 30^\circ}$$

(a) 1

(b) 5

(c) 2

(d) 3

55

The straight line passing by the two points  $(0, 0)$ ,  $(2, 3)$  is parallel to the straight line whose slope is  $\dots\dots\dots$

(a)  $\frac{3}{2}$

(b)  $\frac{2}{3}$

(c)  $-\frac{3}{2}$

(d)  $-\frac{2}{3}$

56

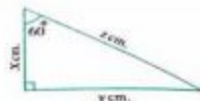
In the opposite figure :

(a)  $x + y = z$

(b)  $z = x^2 + y^2$

(c)  $2x = z$

(d)  $y = \frac{1}{2} z$





**Choose the correct answer:**

1) If  $x = \{2\}$  ,  $y = \{3\}$  , then  $x \times y = \dots$

- a) 6                      b)  $\{(3, 2)\}$                       c)  $\{(2, 3)\}$                       d) 9

2) If  $a, 3x, b, 9x$  are proportional , then  $\frac{a}{b} = \dots$

- a) 3                      b) 9                      c)  $\frac{1}{3}$                       d)  $\frac{1}{9}$

3) If  $x = 3y$  , then  $y \propto \dots$

- a) x                      b) y                      c)  $\frac{1}{x}$                       d)  $\frac{1}{y}$

4) The difference between the greatest value and smallest value is called. ....

- a) The mean                      b) the median                      c) the mode                      d) the range

5) If  $\sin 2x = \frac{1}{2}$  , then  $x = \dots$  (x is acute angle)

- a) 30                      b) 60                      c) 15                      d) 45

6) if  $L_1 \parallel L_2$  , and slope of st.line  $L_2 = \frac{2}{3}$  , then slope of  $L_1 = \dots$

- a)  $\frac{2}{3}$                       b)  $-\frac{2}{3}$                       c)  $\frac{3}{2}$                       d)  $-\frac{3}{2}$

7) If origin point is midpoint of  $\overline{AB}$  where  $A(4, -2)$  , the coordinates of point B is .....

- a)  $(4, 2)$                       b)  $(-4, -2)$                       c)  $(4, -2)$                       d)  $(-4, 2)$

8) Equation of the equation of st, line passing through origin point and make angle of measure 45 with positive direction of x- axis is ....

- a)  $y = 1$                       b)  $x = 1$                       c)  $y = x$                       d)  $y = -x$

**Mathematics :****Choose the correct answer:**

1) Range of values 16,7,9,13,21 is.....

- a) 13                      b) 14                      c) 15                      d) 16

2) If  $6a = 5b$  , then  $\frac{a}{b} = \dots\dots\dots$

- a)  $\frac{5}{6}$                       b)  $\frac{6}{5}$                       c) 5                      d) 6

3)  $n(x)=3$ ,  $n(x \times y)=15$ ,  $n(y)=\dots\dots\dots$

- a) 12                      b) 9                      c) 3                      d) 5

4) If  $y$  direct variation with  $x$  ,  $y$  inverse variation with  $z$  , then  $y \propto \dots\dots\dots$

- a)  $xz$                       b)  $\frac{x}{z}$                       c)  $\frac{z}{x}$                       d)  $\frac{1}{zx}$

5) If  $\sin(x+10) = \frac{1}{2}$  , then  $x = \dots\dots\dots$  ( $x$  is acute angle)

- a) 30                      b) 40                      c) 50                      d) 60

6) if  $L_1 \perp L_2$  ,and slope of st.line  $L_2 = \frac{1}{2}$  ,then slope of  $L_1 = \dots\dots\dots$

- a) 2                      b) -2                      c)  $-\frac{1}{2}$                       d) 0.5

7) if two st.line thir slope  $\frac{2}{3}, \frac{6}{k}$  are parallel,then  $k = \dots\dots\dots$

- a) -4                      b) -9                      c) 4                      d) 9

8) The equation of the straight line that passes through  $(-3,4)$  and parallel to  $y$  axis is.....

- a)  $y = 4$                       b)  $x = -3$                       c)  $y = -4$                       d)  $x = 3$



**Choose the correct answer:**

- 1) If  $\frac{a}{b} = \frac{c}{d} = \frac{2}{5}$ , then  $\frac{a+c}{b+d} = \dots\dots\dots$
- a) 2                      b) 5                      c)  $\frac{2}{5}$                       d)  $-\frac{2}{5}$
- 2) The function  $f(x) = x^2 - (x^2 - 3x)$  is function from.....degree
- a) first                      b) second                      c) third                      d) zero
- 3) If  $f(x) = 3x + b$ ,  $f(5) = 13$ , then  $b = \dots\dots\dots$ ;
- a) 2                      b) 3                      c) -3                      d) -2
- 4) The point  $(x, 5)$  lie in y-axis, then  $x + 3 = \dots\dots\dots$
- a) 5                      b) -5                      c) 0                      d) 3
- 5)  $\sin^2 60 + \cos^2 30 = \dots\dots\dots$
- a) 2                      b) 3                      c)  $\frac{3}{2}$                       d)  $\frac{2}{3}$
- 6) If  $x \cos^2 60 = \sin 45 \cos 45$
- a) 4                      b) 2                      c) 3                      d) 1
- 7) if  $m(2, -3)$  mid point of AB,  $A(x, -6)$ ,  $(4, y)$ , then  $x = \dots\dots$ ,  $y = \dots\dots$
- a)  $(0, 0)$                       b)  $(-2, 0)$                       c)  $(2, 0)$                       d)  $(3, -3)$
- 8) if two st.line thir slope  $-\frac{1}{4}$ ,  $\frac{8}{k}$  are perpendicular, then  $k = \dots\dots\dots$
- a) 2                      b) -2                      c) 32                      d) -32

**Choose the correct answer:**

1) The middle proportion between 3 and 27 = .....

- a) 9                      b) -9                      c)  $\pm 9$                       d) 3

2)  $x^2 y^2 - 6xy + 9 = 0$  , then  $y$  is .....

- a)  $x$                       b)  $y$                       c)  $\frac{1}{x}$                       d)  $\frac{1}{y}$

3) If  $(a, 2)$ , one of solution of,  $f(x) = 3x - 1$  , then  $a = \dots$

- a) -1                      b) 3                      c) -3                      d) 1

4) if  $(x-1, 11) = (8, y+3)$  , then  $\sqrt{x+2y} = \dots$

- a)  $\pm 5$                       b) 9                      c) 5                      d) -9

5) If  $\sin(x+15^\circ) = 1$  , then  $x = \dots$  (x is acute angle)

- a) 30                      b) 60                      c) 45                      d) 90

6) if st.line passing points  $(8, 3), (2, k)$  parallel X-axis then  $k = \dots$

- a) 0                      b) 3                      c) -3                      d) 8

7) st.line whose equation  $y = 2x - 3$  ,intercepted from y-axis part .....

- a) 3                      b) -3                      c) 2                      d) -2

8) If  $m_1, m_2$  are the slope of two lines and  $m_1 \times m_2 = -1$  ,then two st.line are .....

- a) Equal                      b) parallel                      c) perpendicular                      d) congruent



Mathematics :Choose the correct answer:

- 1) .....is positive square root to the average of squares deviations of values from mean
- a) The mean      b) the median      c) the mode      d) the standard deviation
- 2) The third proportion of 3 , 5 , 40 is .....
- a) 3      b) 5      c) 40      d) 24
- 3) If  $3xy = 8$  , then  $y \propto$  .....
- a)  $x$       b)  $y$       c)  $\frac{1}{x}$       d)  $\frac{1}{y}$
- 4) If the point (a, 4) lies on the straight line which represents the function  $f : \mathbb{R} \rightarrow \mathbb{R}$  where  $f(x) = x - 5$  , then  $a =$  .....
- a) 9      b) 9      c) 4      d) -1
- 5) If  $\sin x = \frac{1}{2}$  , then  $\tan 2x =$  ..... (x is acute angle)
- a)  $\frac{1}{2}$       b)  $\sqrt{3}$       c)  $\frac{\sqrt{2}}{2}$       d)  $\frac{\sqrt{3}}{2}$
- 6) if st.line passing points(m,4),(5,7) parallel Y-axis then  $m =$  .....
- a) 7      b) 5      c) -7      d) -5
- 7) The distance between the point ( 8 , - 6) and x - axis = .....unit
- a) 8      b) 6      c) -6      d) -8
- 8) Equation of st.line its slope 6 , cut 4 parts from negative direction of y-axis.....
- a)  $y = 6x$       b)  $y = 6x + 4$       c)  $y = 6x - 4$       d)  $y = -4$

Choose the correct answer from those given:

- 1) If  $X = \{2, 4, 6\}$ ,  $n(Y) = 4$ , and the function  $f: X \rightarrow Y$ ,  $f(x) = x^2 - 1$

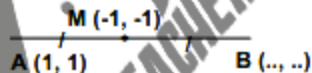
Then Y may be equal .....

- a)  $\{3, 7, 13\}$     b)  $\{3, 15, 35\}$     c)  $\{3, 15, 25, 45\}$     d)  $\{3, 15, 25, 35\}$
- 2)  $(2x, 4) = (8, y + 1)$  then  $\sqrt{x^2 + y^2} = \dots\dots\dots$   
(  $\sqrt{5}$  , 5 ,  $\sqrt{3}$  , 3 )

- 3) If the point  $(a, 5)$  lies on the straight line which represents the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  where  $f(x) = 3x - 4$ , then  $a = \dots\dots\dots$   
( 3 , -3 , 1 , -1 )

- 4) In the figure opposite:

If M is the mid-point of  $\overline{AB}$ , then B = .....



- i)  $(-3, 3)$     ii)  $(3, -3)$     iii)  $(-3, -3)$     iv)  $(3, 3)$
- 5)  $\tan 75^\circ = \dots\dots\dots$   
i)  $\frac{\cos 75^\circ}{\sin 75^\circ}$     ii)  $3 \tan 25^\circ$     iii)  $\frac{\sin 75^\circ}{\cos 75^\circ}$     iv)  $2 \sin 25^\circ$

- 7) If  $m_1$  and  $m_2$  are two orthogonal straight lines, then .....

- i)  $m_1 m_2 = -1$     ii)  $m_1 m_2 = 1$     iii)  $m_1 = m_2$     iv)  $m_1 = -m_2$

- 8) The point  $(4, -3)$  is ..... length units distant from the origin.

- i) 3    ii) 4    iii) 5    iv) 7



Choose the correct answer from those given:

- 6) The third proportional of the number 9 and -12 is .....  
( -16 , 8 , 16 , 108 )
- 7) The range of 51, 53, 55, 57, 60, 58 is .....  
( 9 , 4 , 7 , 5 )
- 8) The set of images of the elements of the domain of the function is called .....  
( the rule - the domain - the range - the codomain)
- 9) If  $f(x) = 3$ , then  $3f(2) - 2f(3) =$  .....  
( zero , 4 , 1 , 3 )
- 10) In  $\triangle ABC$ , if  $m(\angle B) = 90^\circ$ , then  $\sin A + \cos C =$  .....  
(  $2 \cos A$  ,  $2 \sin C$  ,  $2 \sin B$  ,  $2 \sin A$  )
- 11) If  $\sin X = \frac{1}{2}$  X is an acute angles , then  $m(\angle X) =$  .....  
( 45 , 60 , 30 , 90 )
- 12) The straight line whose equation is  $2x - 3y - 6 = 0$  intercepts from the Y - axis  
a part of length .....  
( -6 , -2 ,  $\frac{2}{3}$  , 2 )
- 13) The point which at distance 2 units from the origin is .....  
[ (1,2) , (2,0) , (2,7) , (-5,5) ]

Choose the correct answer from those given:

1) If the point  $(x - 4, 2 - x)$  where  $x \in \mathbb{Z}$  is located in the third quadrant, then  $x$  equals .....

( 2 , 3 , 4 , 6 )

2) The first proportional for the numbers to 23 , 15 and 69 is .....

( 5 , 3 , 12 , 108 )

3) The range of 42, 45, 47, 49, 52, 92 is .....

( 3 , 10 , 47 , 50 )

4) If  $X = \{1, 3, 5\}$ , and  $R$  is the function on  $X$  where  $R = \{(a, 3), (b, 1), (1, 5)\}$ , Then the value of  $a + b$  .....

( 5 , 6 , 8 , 4 )

5) The point which at distance 2 units from the origin is .....

[ (1,2) , (2,0) , (2,7) , (-5,5) ]

6) If:  $AB \parallel y$ -axis , where  $A(x, 7)$  and  $B(3, 5)$  , then  $x$  is .....

( 3 , 5 , 7 , 4 )

7)  $\tan 75^\circ =$  .....

i)  $\frac{\cos 75^\circ}{\sin 75^\circ}$

ii)  $3 \tan 25^\circ$

iii)  $\frac{\sin 75^\circ}{\cos 75^\circ}$

iv)  $2 \sin 25^\circ$

8) If  $m_1$  and  $m_2$  are two orthogonal straight lines, then .....

i)  $m_1 m_2 = -1$

ii)  $m_1 m_2 = 1$

iii)  $m_1 = m_2$

iv)  $m_1 = -m_2$



**Choose the correct answer from those given:**

1.  $(x + 1, 2) = (3, \sqrt[3]{y})$  then  $x + y = \dots\dots\dots$   
( 12 , 10 ,  $2\sqrt[3]{2}$  , 6 )
2. If the point  $(a, 2a)$  lies on the straight line which represents the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  where  $f(x) = 3x - 4$ , then  $a = \dots\dots\dots$   
( 4 , 5 , 6 , 3 )
3. If  $\frac{3a-5b}{7a+4b} = 0$ , then  $\frac{b}{a} = \dots\dots\dots$   
a)  $\frac{5}{3}$       b)  $\frac{3}{5}$       c) 15      d) 2
4. The point  $(-3, 4)$  lies in  $\dots\dots$  Quadrant.  
a) First      b) second      c) third      d) fourth
5. The point which at distance 2 units from the origin is  $\dots\dots\dots$   
[ (1,2) , (2,0) , (2,7) , (-5,5) ]
6. If:  $AB \parallel y$ -axis , where  $A(x, 7)$  and  $B(3, 5)$  , then  $x$  is  $\dots\dots\dots$   
( 3 , 5 , 7 , 4 )
7. In  $\triangle ABC$ : if  $m(\angle A) = 85^\circ$ ,  $\sin B = \cos C$  , the  $m(\angle C) = \dots\dots\dots^\circ$   
( 45 , 60 , 50 , 90 )
8. If  $\sin 30^\circ = \cos A$ , where  $A$  is an acute angle, then  $m(\angle A) = \dots\dots^\circ$   
( 10 , 60 , 45 , 30 )

Choose the correct answer from those given:

1. If  $\frac{1}{2}x = 3$ , then  $\frac{2}{3}x = \dots\dots\dots$   
( 1 , 4 , 6 , 9 )
2. If  $\frac{A}{B} = \frac{5}{3}$ , then  $\frac{3A}{5B} = \dots\dots\dots$   
( 1 , 3 , 15 ,  $\frac{5}{3}$  )
3. If the set of ordered Pairs of a function is  $\{(1, 2) (3, 4) , ( 5, 6 ) \}$  its range =  $\{ \dots\dots\dots \}$   
( {1,3,5} , {2,4,6} , {1,2,3,4,5,6} , {1,2,3,4} )
4. If y varies inversely as x and if  $x = \sqrt{3}$  as  $y = \frac{2}{\sqrt{3}}$ , then the constant of variation = ...  
(  $\frac{1}{2}$  ,  $\frac{2}{3}$  , 2 , 6 )
5. The distance between the point (-1 , -3) and the Y axis is .....length units  
( 1 , -1 , -3 , 3 )
6. If  $\tan \frac{3x}{2} = 1$  where x is an acute angle, then  $m(\angle x) = \dots\dots\dots^\circ$   
( 10 , 45 , 30 , 60 )
7. If  $\sin 30^\circ = \cos A$ , where A is an acute angle, then  $m(\angle A) = \dots\dots\dots^\circ$   
( 60 , 30 , 45 , 10 )
8. If  $\overline{AB} \parallel x\text{-axis}$  where A (4 , a) & B (5 , 2), then a = .....  
( 4 , 5 , 2 , 0 )